Annual Report for Fiscal Year 2010-2011

Loyola Marymount University
Information Technology Services

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Overview

Year in Review

For the second straight year, the "Princeton Review" publication highlighted the "Great Computer Facilities" at LMU. There is no doubt that Fiscal Year 2011 marked another step towards achieving the goal of creating engaging learning spaces.

The Charles Von Der Ahe Building went into hibernation and emerged as a technology showcase for students. The Student Help Desk was relocated to the first floor of the revamped space and changed its brand while expanding its service offerings. The new "Student Innovation Center" is staffed by students and ITS staff who, in addition to providing laptop repair services, will provide broad and curricular-based technology training for students.

In the Seaver College of Science and Engineering, Information Technology Services partnered with faculty and the Dean's office to completely renovate South Pereira Hall, providing students with a technology-rich environment intended to encourage collaboration between students of all engineering disciplines. Not only were the audio/visual capabilities dramatically enhanced, but several "virtual desktops" were installed in the renovated space so that ITS and engineering students could pilot this new technology. "Virtualization" technology holds the promise of making software resources much more accessible to LMU students.

The upgrade to the School of Film and Television's digital infrastructure was so transformational that Variety magazine took note. In the September 20th, 2011 "Tech notes of note" section of Variety magazine, author Peter Caranicas writes that "with the new system, from the first camera shot, through editing, sound mixing, title sequence and vfx, all the way to projection, films live entirely on a secure, high-speed server." This upgrade was a result of a very tight collaboration between the School of Film and Television and Information Technology Services.

These student-facing technologies were a slice of what occupied the Information Technology Services project portfolio. The Enterprise Systems team continued to implement infrastructure that will make LMU's IT capabilities more responsive and agile. The User Support and Consulting Services team turned significant attention inwards and focused on implementing a new IT Management application that has already streamlined services and made them more accessible to LMU's user community. The Information Security team expanded its capabilities by hiring an Information Security Analyst. Finally, the Infrastructure Technology team began to build out the infrastructure to support virtualized desktop employments.

Looking Ahead

The way that higher education information technology departments have traditionally delivered services is being reshaped by several forces. What below is a high-level overview

of two of these forces, the "consumerization of technology" and the continued consolidation of the technology vendors supplying services to Loyola Marymount University.

The "consumerization of technology" refers to the increasing ease, accessibility, and power of technologies available for "free" to consumers so they no longer have to depend on traditional information technology departments to make these technologies available. This phenomenon was accelerated in no small part by Apple Computer's release of the iPhone and iPad, technologies that have been revolutionary in their ease of use and power. This phenomenon has naturally raised the expectations end users at LMU have of the technology services provided by Information Technology Services. This causes extraordinary tension when acceptable technologies are not provisioned by ITS at LMU and end users look to the marketplace for alternative solutions. As an example of the conundrum that this issue poses, consider the following. ITS currently offers a web-based file storage solution branded as "LionShare." It is hosted on LMU's servers within LMU's firewall. Unfortunately, though, the solution LMU hosts is not nearly as usable or functional as a "free" service called DropBox, which is a web-based file storage tool hosted in the "Cloud." What are the implications of LMU faculty and staff determining that they are happier and more comfortable using a "free" service over which LMU has no technical control? What if DropBox leveraged servers hosted in countries with which the United States has adversarial relationships? What exactly is the business model for "free" services?

ITS has already begun to answer these questions through a number of responses. The first strategy is to, where possible, embrace these cloud-based technologies and through a partnership with general counsel, negotiate terms and conditions acceptable to LMU. This strategy has been successfully executed with a number of vendors, Google being one of the first. Secondly, to the extent that it is impossible to anticipate every technology that might appeal to LMU stakeholders, the wisest approach is to create a culture of awareness around these technologies. The Information Security team within ITS has already embraced this approach more broadly with more traditional information security threats (like "Phishing," the merits of using strong passwords, etc.) Finally, it is essential for LMU to build out an agile technology infrastructure that will enable, where prudent, ITS to take advantage of these "consumerized" technologies.

The second phenomenon that will have an impact on LMU's future is the frenzied activity of mergers and acquisitions of some of LMU's largest technology suppliers. A summary of activity follows:

1. January, 2010 - Oracle acquired Sun Microsystems. LMU has a significant investment in Sun's identity management solution.
2. July, 2011 - Providence Equity Partners, a private equity firm, acquired Blackboard, Inc. Blackboard builds and maintains LMU's learning management system, mass notification system, online door locks, web files, and merchant payment system.
3. August, 2011 - Hellman and Friedman LLC, a private equity firm, which already owned Datatel (a competitor of SunGard Higher Education) purchased SunGard Higher Education.

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The precise extent to which this consolidation will impact LMU is unknown, but LMU's ITS leadership has multiple strategies (unified by the theme of collaboration) for mitigating risk in this environment. LMU has regular meetings with Gartner, Inc. (a technology management consulting firm) to gain clarity around the motivations for this activity and the likely downstream impact on the technology at LMU. Secondly, the senior ITS leadership team is actively engaged in Educause and its constituent groups (Information Security, Enterprise Applications, and others). Finally, LMU actively participates in the Association of Jesuit Colleges and Universities Conference on Information Technology Management. This affiliation provides a recurring venue for sharing best practices around vendor management.

Financial Review for Fiscal Year 2011

Compared to Fiscal Year 2010, actual non-capital expenses increased by 5.2%. This was largely driven by a 8% rise in software maintenance. The software maintenance increase is a result of the on-boarding of Oracle Payroll and Time and Labor in addition to the annual inflationary rise built into most of LMU's software contracts. Staffing, the largest component of ITS' expenses, increased by only 2.7%.

Information Technology Services maintains little control over the Software Maintenance, Hardware Maintenance, RMP, Staffing, and Corporate Contractual categories. The least bound category of expenses is the "Operations" category, which includes expenses like training, travel, office supplies, and other expenses necessary to run operations. This expense category represents only 6% of departmental expenses for Fiscal Year 2011.
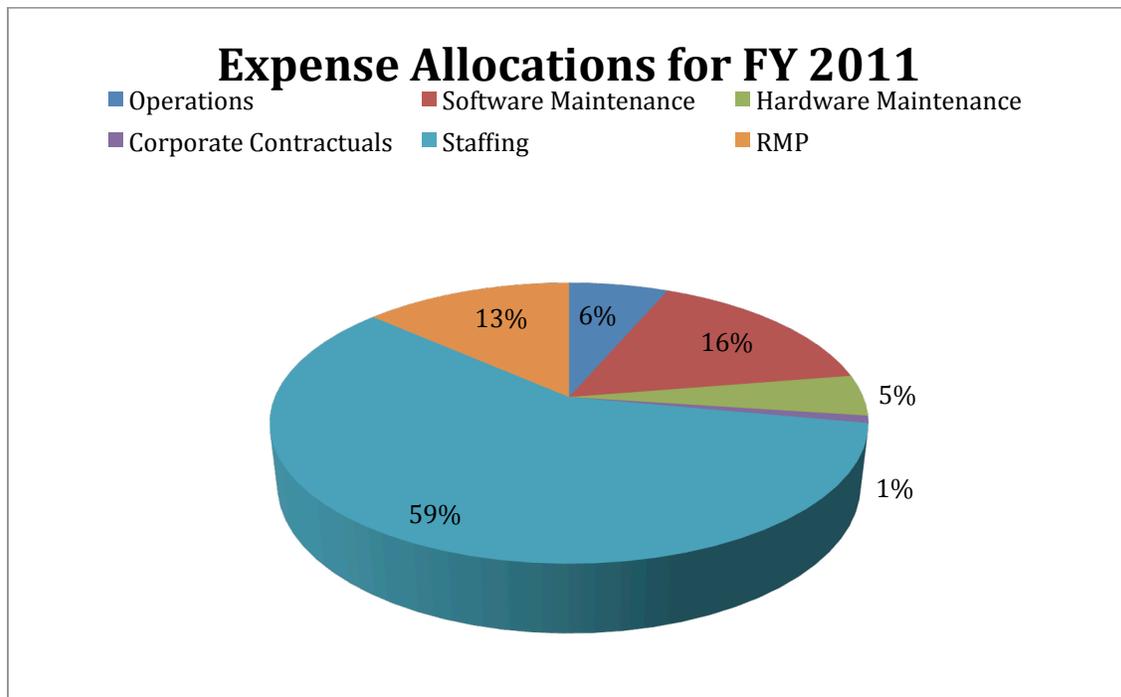

Figure 1: Expense Allocations

Highlighted Initiatives

School of Film and Television Technology Infrastructure Upgrade

More meaningful than Variety magazine's taking note of the renovated Communication Arts building were the joyful expressions of SFTV students discovering the new space and capabilities of their remade Animation Department. The physical remake of the Animation Department's space is nothing short of breathtaking. The upgrade of the technology infrastructure supporting student and faculty projects in the School of Film and Television is equally amazing when considering the expanse and promise it holds for the School's future. The network capacity in the Communication Arts building was expanded to 10 Gigabytes, in some cases all of the way to the desktop. The current four-node Isilon – the new server that supports digital work done by students and faculty in SFTV - handles up to 65 TB of usable capacity and performs at ten times the speed of the replaced solution. Combined, these two infrastructure upgrades will allow for students to develop creative works collaboratively across departments and in near real-time. This showcase of cutting edge technology was made possible by a close collaboration between the Network Services team, the Systems Administration Team, the Learning Spaces Team, and the technicians and faculty within the School of Film and Television.

The Charles Von Der Ahe Building

The theme underpinning the renovation of the Charles Von Der Ahe building was to enhance and consolidate services offered to students and alumni into an accessible and appealing space. Consistent with this theme, Information Technology Services, in January of 2011, opened two showcase spaces, one focused on students and one focused on faculty. The Student Innovation Center (see Figure 2) is the next evolution of the St. Robert's Computer Lounge. In addition to providing laptop repair services, the space offers technology seminars and consulting for students wishing to enhance their skills. The Student Innovation Center staff is also working closely with faculty to program technology trainings that will support in-class endeavors.

Figure 2: The Student Innovation Center

The faculty-oriented Technology Incubator classroom, located across the hall from the Student Innovation Center, was designed to be the next step in the journey of a faculty wishing to infuse his or her curriculum with technology. The first step would be a visit to the Faculty Innovation Center, which might trigger an idea about instructional technology. The Technology Incubator classroom hosted the culmination of the iPad Exploration Project (discussed below).

IT Management Implementation

A major achievement for Information Technology Services was the implementation of a new service management tool called Service-Now. This was an intensive four-month project which replaced the Altiris ticketing system for incident management, the SharePoint system for change management, the Altiris asset management system, and the custom-built web system used to manage the Resource Management Plan (RMP). Additionally, ITS added problem management for root-cause tracking, a knowledge base for workarounds and standard operation procedures, a social media tool for group collaboration and communication, advanced on-demand and scheduled reporting based on Service Level Agreements and KPIs, and the foundation for the new service catalog. The new system, and the revamped IT processes it supports, will help ITS to integrate service offerings, improve transparency of operations, strengthen communications within the LMU community, and improve operational efficiency.
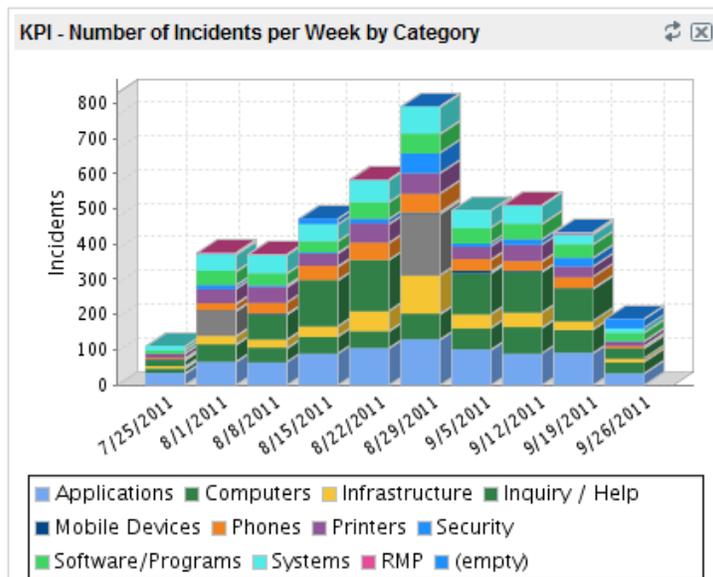

Figure 3: Example of Service-Now Metrics

Academic Technology Achievements

iPep

The iPad Exploration Project, or iPep, was a project born out of collaboration between the Director of Academic Technology Services at Loyola Marymount University and her colleague at the University of San Francisco. LMU's implementation of iPep began in October of 2010 with an invitation sent to faculty to participate in a program whose goal was to foster innovation and exploration of the iPad in instructional technology. Ultimately, over 28 faculty were selected to participate. The iPad Exploration Project required faculty to chart a course of exploration with the iPad. The faculty in the program shared their journeys with one another by participating in periodic small group conversations, blogging about their discoveries of the iPad's use in instructional technology, and ultimately, sharing the work they completed during the culminating event hosted in the Technology Incubator Classroom on the first floor of the Charles Von Der Ahe building in April, 2011. This work can be viewed by visiting the Faculty Innovation Center's site at this URL: http://its2.lmu.edu/fic/showcase/ipep.html.
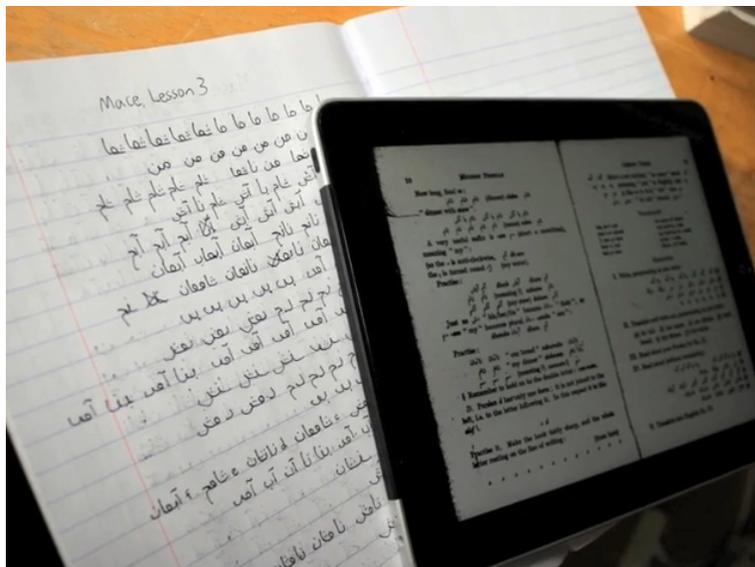
Figure 4: iPad Exploration Project Example

Academic Technology Survey

In November and December of 2010, the Academic Technology team distributed the Academic Technology Survey for the third consecutive year. The results for ITS were extremely positive.

With respect to MYLMU Connect, 58% of Faculty indicated being "Satisfied" or "Very Satisfied" with the current Blackboard implementation of LMU's supported Learning Management System. 15% of the Faculty are "Dissatisfied" or "Very Dissatisfied" with MYLMU Connect with the balance (27%) being "Neutral." In the 2009 survey, only 38%

were "Satisfied" or "Very Satisfied". This represented a 20% increase in satisfaction in one year.

Trends about Faculty perception of the ITS Help Desk showed a similar positive trajectory. In 2008, 62% of Faculty were "Satisfied" or "Very Satisfied" with the Help Desk. In 2010, 76% of Faculty indicated that they were "Satisfied" or "Very Satisfied".

VDI

As part of a continued effort to increase the accessibility of LMU technology resources to students, Virtual Desktop Infrastructure pilot projects were initiated across campus during Fiscal Year 2011. Virtual Desktops can allow for software to be accessed either via thin clients (very similar to "dumb" terminals) or through web browsers. This technology holds the potential to metaphorically break down space and time constraints imposed by traditional brick and mortar computer labs. The net result is that an off-campus student or a student in a residence hall at LMU could open a web browser and access the same software titles available to students sitting in a physical lab. One of the pilot projects currently in production involves virtualizing the software used by one of the labs in the College of Business Administration.

In addition to providing better convenience and accessibility to students, VDI technology also holds the potential to reduce cost. Gartner estimates that when comparing the costs of similarly well-run VDI deployments and traditional desktop deployments, savings of around 20% can be realized with the VDI deployments. The technology is currently limited and does not provide the functionality necessary to deploy VDIs beyond academic labs, but it is evolving rapidly.

IT Infrastructure Achievements

Wireless Upgrades

During Fiscal Year 2011, wireless upgrades were completed in the Whelan, Rosecrans, Desmond, McKay, Tenderich, Del Rey North, and Del Rey South residence halls, where the density of Access Points (AP) doubled from the original number. Since the upgrades to these residence halls, there have been minimal issues and tickets associated with poor wireless availability in these spaces. For the current Fiscal Year, Network Services will be upgrading the wireless infrastructure in several other residence halls.

VMWare Upgrades

LMU has made *significant* investments in VMWare with over 75% of our servers being implemented as virtual machines. In November, 2011, ITS upgraded the VMWare infrastructure from Virtual Center 2.5 to VSphere 4.1. The features of the upgraded 4.1 infrastructure include:

- Improved administrative tools
- Advanced management tools
- Better memory management

- Larger, more powerful virtual machines
- The ability to create a virtual machine of almost any flavor

NetApp NAS Upgrade

The NAS upgrade project replaced a pair of NetApp 3050c head units with new NetApp 3240 devices. The upgrade enables 10 GB Ethernet connectivity for all devices utilizing the NetApp storage device. Some of the benefits of the new hardware are greatly improved IOPS capability and performance for enterprise applications and file shares and provides for improved scale for storage provisioning. This provides LMU with a scalable resource to meets its IT demand for storage.

User Support and Consulting Services Achievements

Client Services

In ITS, FY2011 incidents were down from the previous year by 14%. Although there were fewer incidents overall, some of the more time-consuming incident categories like "Virus and Malware Removal", "Operating System Upgrades", and "Printer Installs" were up. Even with these challenges, the Service Desk was able to close 53% of all tickets within the first 24 hours and maintain an average satisfaction rating of 4.8 out of 5.0.

The Service Desk made strides in improving service to callers (vs. email reports of incidents) during Fiscal Year 2011. For 8 of the 12 months the Client Services team handled its target rate of 85% of incoming calls or better. During the traditionally busy month of August, the Client Services team had an average speed to answer of less than one minute.

This academic year was also the beginning of a new era. Starting June 1st, ITS launched a new Service Management tool called Service-Now. This fully hosted solution replaced the Altiris ticketing and asset management systems, the internal change management system, and the custom-built RMP Web process. ITS management now has real-time data monitoring, custom reporting, and monthly RMP status updates that are mailed to each RMP coordinator.

Student Employment Authorization Process Improvement

In the September 8th, 2011 issue of the Los Angeles Loyolan, Student Employment Services and Information Technology Services received a "Thumbs up" from the editorial board of the Loyolan for drastically improving the student hiring process, which involves countless faculty, staff, and students. The net result of this technology project includes benefits also gained by redesigning the process. The benefits include:

- Eliminated yearly paper use required for manual Banner entry of over 6000 authorization records for over 3400 distinct students
- Reduced student I-9 entry time by enabling student self-service I-9 submission and streamlining manual I-9 entry which previously took 3 minutes per I-9

- Empowered SES front desk student employees to answer authorization process questions on demand, eliminating the nearly 15 minute search for information in Banner and student files
- Enhanced student experience by significantly reducing payment errors and delays caused by authorized students without I-9 records

Nolij Web version 6.4.4

The installation of the latest version of Nolij Web resulted in a solution that will save LMU hundreds of hours of employee time each year. Involving eight offices and 17 people across campus, the Nolij Web upgrade project resulted in added enhancements like direct e-mail functionality from the user interface. The upgraded version of Nolij Web has multiple API enhancements/additions, improvements in workflow capabilities and form design, along with further web services integration. As part of the effort to increase and improve efficiency ITS implemented "Nolij Auto Import" in the Financial Aid and Admissions offices. The new process and technology automatically recognize and upload thousands of documents into the system from multiple sources.

Enterprise Applications Achievements

Service Oriented Architecture

In response to the "consumerization of technology" (discussed in the "Overview" section) and the related evolution of "cloud" technologies, ITS, with the goal of becoming more agile and responsive to emerging technology needs, intensified its strategy of implementing a Service Oriented Architecture (SOA) infrastructure. The capital expenses related to infrastructure components of SOA will allow, in the long term, ITS to do less with more. SOA allows for applications to be integrated together in a more de-coupled and architecturally sound way. This architecture then allows for upgrades and changes to occur to segments of the technology without having ripple effects on other, seemingly unrelated, systems, thereby lessening the burden on software developers and analysts.

In 2010, Information Technology Services selected Oracle Fusion Middleware as the SOA platform after an extended trial with Red Hat. The installation of the SOA suite involved the provisioning of 15 servers. Existing production environments are already leveraging the SOA infrastructure, and ITS will continue migrating exiting integrations to this environment this year.

Central Authentication Service

With an eye towards continuing to create a more agile and responsive set of capabilities and services, ITS built out the Central Authentication Service (CAS). CAS is an authentication system originally created by Yale University to provide a trusted way for an application to authenticate a user. LMU's implementation of CAS will allow the campus to establish a

standard way to integrate web authentication, not only with internal LMU applications, but also cloud-hosted applications.

RecruitmentPlus to Banner Integration Upgrade

One of the most time-intensive integrations at LMU is the integration between the Recruiting software (RecruitmentPlus) and Banner. One of the reasons this integration requires so much manual effort is that it is important for the staff in the Registrar's Office and the Admissions Office to ensure that duplicate entries of applicants are not entered into the Student Information System. In FY 2011, ITS, the Admissions Office, and Registrar's Office invested significant resources into re-writing the integration so as to lessen the manual burden that had been associated with this integration. For staff in the Registrar's office, the process of inputting students has been reduced from weeks to days.

Information Security Achievements

Audit

This year marks the first year in which Information Technology Services earned a clean audit with no findings to correct from our external auditors PriceWaterhouseCoopers (PwC). Annually, PwC is hired to perform an audit of IT controls related to the operations of LMU's financial and student information systems. Over the past 5 years, the ITS department has tirelessly improved internal controls and remediated previous year findings. Information Technology Services looks forward to duplicating the current effort next year.

FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
8	3	3	2	2	0

Enhanced Services

As part of LMU's information security strategy, the Information Security team now provides additional and enhanced services related to protecting information assets of LMU. These services include quicker response to malicious Internet traffic, better change control monitoring, and faster user account auditing. Additionally, the Information Security team has been able to increase its ability to take on more information security projects to further protect LMU from Internet threats. These enhanced services have been made possible by the hiring of LMU's first Network Security Analyst.

Disaster Recovery @ USF Update

During the past year ITS has continued working on building a more responsive disaster recovery solution for Oracle Financials and the Banner Student Information System than had been afforded by the traditional tape-based process. The strategy involves co-locating LMU assets in one of University of San Francisco's data centers. The DBAs and System Administrators at LMU implemented DataGuard to replicate in near real time the primary system files and database of Oracle eBusiness Suite and Banner. Prior to this implementation, if ITS had to rebuild these systems from tape, the process could have taken

several days with the potential of up to a week's worth of data being lost (depending on the day of the disaster). Today, data is replicated securely to USF approximately every 60 seconds depending on the quantity of database transactions. In the event of a disaster ITS would reroute users to the USF site within minutes with nearly no potential for data loss.

Outreach and Communication

VDI Collaboration with University of San Francisco, Santa Clara University, and Gonzaga University

At the AJCU-CITM hosted by Fordham University in April, 2010, the CIOs from the University of San Francisco, Santa Clara University, Gonzaga University, and Loyola Marymount University established the goal of finding a manageable project on which technical staff from the four universities could participate. The ultimate goal is to create shared services that, in the long run, could reduce burden on any one of the University's IT staff. In the fall of 2010, select technical staff from the four universities gathered at the University of San Francisco to imagine potential collaborations for exploring shared services. The group decided that an opportunity to jointly explore the two leading Virtual Desktop Infrastructure technologies, VMWare and Citrix, was ideal. From that point, Phase I of the project was hatched, with the goal being to jointly recommend a vendor and establish a common architecture. Phase I concluded in the spring of 2011.

EduSoCal 2011

LMU was again instrumental in the EduSoCal conference, which was hosted at Long Beach City College in April, 2011. Crista Copp, the Director of Academic Technology Services at LMU, was the conference chair responsible for assembling the program. A number of ITS employees presented at the conference, which was attended by over 160 Higher Education IT professionals, mostly from California. Details, including information about what presentations were made by ITS employees, can be found here: http://edusocal.org/

AJCU-CITM

The Association of Jesuit Colleges and Universities IT affinity group, the Conference on Information Technology Management, held its annual conference at Santa Clara University in March, 2011. At the conference, LMU presented on the work to date that had been completed on the iPad Exploration Project. The feedback provided by LMU's sister schools was overwhelmingly positive.

In addition to attending the annual conference, LMU was an active member on the Shared Services Subcommittee of the CITM. The subcommittee's goal is to research and implement ways that AJCU institutions can better collaborate to achieve economies of scale so as to ultimately drive down the costs of providing IT services.

Information Technology Services Committees

University Technology Council

One of the primary tasks of the University Technology Council during Fiscal Year 2011 was to review and inform the business drivers that influence whether LMU opts to invest in a process improvement initiative. General consensus was achieved on the business drivers that are now included as part of capital technology project requests.

The UTC also reviewed and recommended for approval a number of process improvement initiatives and voted to recommend for approval a new Mobile Computing Policy.

Enterprise Technology Committee

The Enterprise Technology Committee served as a clearing house to coordinate and communicate about large, cross-university projects, including process improvement initiatives, the selection of the new Content Management System, the Payroll and Time and Labor Upgrade, the implementation of the Enterprise Scheduler, and the implementation of the SOA architecture. The Enterprise Technology Committee also served as a clearinghouse for discussion and coordination of the IT component of disaster response and recovery initiatives.

Academic Technology Committee

The University Academic Technology Committee spent the past year working on two major initiatives. The first was a significant revamp of Academic Technology Summer Grants which, amongst several other improvements, moved to an online format this past year. The new process improves efficiency and saves a significant amount of paper. These improvements laid the foundation for innovative changes discussed in the spring and will be implemented in the 2011-2012 Summer Grants. The second initiative focused on creating Academic Technology Policies, many of which focus around online and hybrid learning environments, a trending topic at LMU. The policies are not quite complete, but a draft is planned to be brought before the Faculty Senate before year's end.

Internal Operations and Staffing

Staffing

Fiscal Year 2011 marked a year of transition for the Information Technology Services staff. Though ITS was disappointed to say good-bye to staff members who had accumulated many years of service, the staff was equally excited to welcome to the team new employees. The eBusiness Suite Financials team was happy to welcome Jim Nakashima and Raj Kode as the new programmer and systems analyst respectively. The Creative Services team was bolstered by the addition of Matt Frank, who will coordinate the efforts of the team and hails from the University of Southern California. The new Network Security Analyst position was also posted and filled by Gary Hatter, who recently graduated from LMU.

Relocations

The last Fiscal Year also was notable for the changes to the arrangement of a variety of teams within Information Technology Services. The Client Services team, which previously occupied a space on the third floor of University Hall, moved to Daum Hall. The University Hall space was refurbished to house the Creative Services team, which will provide media and creative services to Faculty. The System Administration and Network teams moved into a refurbished space on the lower level of St. Robert's.

Conferences and Associations

Conferences and Training

- Blackboard Developers Conference
- Blackboard World
- Campus Technology 2011
- Catalyst Conference North America 2010
- CUE LA - Computer Using Educators Los Angeles
- Dimensional Modeling in Depth
- Disaster recovery seminar
- E4 A/V Solutions
- Educause 2010 National Conference
- Educause Security Professionals Conference
- Educomm 2011
- EduSoCal Conference - Long Beach (Conference chair)
- Extron Advanced A/V Systems School
- Gartner Customer 360 Summit
- Hacker Detection for System Administrators
- HP conference
- Infocomm 2010
- Interop 2010
- Isilon Training
- Lilly-West
- Linux/Unix Admin Training
- NetApp NCDA Training
- Nolij Web 6 Administrators
- Nolijweb Conference - Engage 2010
- Nth Generation Conference
- Oracle Data Warehouse
- Oracle Openworld 2011
- Oracle SOA Suite 11g Administration
- Oracle Warehouse Builder 10
- Oracle Web Logic 11g Administration

- PCI-DSS Seminar
- Pink Elephant 2011
- SANS Security West - System Admin Security
- Sequoia Application, Hardware, and DB training
- Service-Now Training
- SITE Conference
- Storage Decisions Seminar – Disaster Recovery for the 21st Century
- SunGard Summit 2011
- TDWI BI Essentials
- Windows Image Creation

Group Associations

- AJCU Conference on Information Technology Management
- Educause
- Educause Learning Initiative
- Educause Center for Applied Research
- New Media Consortium (NMC): sparking innovative learning and creativity
- Los Angeles Oracle User Group
- Southern California Banner Interest Group