COMPUTER SCIENCE DEPARTMENT

Over the last few years, the Computer Science Department developed Web applications aimed at automating the soul-stealing drudgery associated with paper-based business processes: collecting, duplicating, distributing, and storing paper documents.

The web applications include:

- Faculty Recruitment: This application allows for applicants to submit applications and upload documents. Faculty committee members can then review, comment upon, and request letters of recommendation from within the web app. Letter writers can upload their recommendations, thereby reducing the time spent mailing, collecting, and distributing letters of rec.

- Graduate Student Progress: This application provides the Department a way to track the efforts and progress of its graduate students. Each student is required to update their classes, major exams, papers published, etc. each year. The application lets faculty comment and rate each student. In addition, committee members can design and use a variety of correspondence templates to draft letters which are then put in each student's file.

- Computer Account Creation: In 2007, the College of Engineering moved from NIS to LDAP for account authentication. Along with this change, we developed a front-end web application and a back-end XML RPC daemon. The web application allows admins to approve accounts, manage user quotas, and change passwords. The XML RPC daemon automates home directory creation and modification for new users.

Each web application is built upon the following Open Source Software: Condor, Apache, OpenLDAP, Perl, PHP, CakePHP, and MySQL.

http://www.cs.ucsb.edu
Contact: support@cs.ucsb.edu

PHYSICS TRANSITION TO VoIP

Physics Computing Services recently completed a deployment of more than 125 SIP VoIP phones for UCSB’s Physics department.

New Features of VoIP system:

- Easy Move/Add/Change of telephone handsets
- Email Delivery of Voicemail messages (attached WAV audio file)
- Quick Access to recent messages and voicemail
- Find Me/Follow Me features for Voicemail
- Ability to use UFAN numbers to route calls appropriately
- Travelling telephones with softphone on computer
- Incoming Fax to individual VoIP numbers (shared DID)
- Call-ID
- Local Directory on phone to store dept. roster
- MeetMe virtual Conference Room

What we learned:

- Many of our users appreciate the ability to listen to voicemail messages in their email.
- Many of our users also like knowing that the department’s phone technology is “state of the art”.
- Faculty like the option of using a softphone while traveling - allowing them to receive calls to their office phone and place calls that are billed to their office phone. Similarly, the ability to use a VoIP phone at home helps staff and faculty who telecommute from home.
- The majority of our phone usage is internal to the department (a little over 50% so far).
- The other 25% is on-campus calls and the remaining 25% are off-campus calls.
- Other times, people just want a “plain old phone” to pick up and dial and don’t care about new features. Cordless phones are very important to some people.
- Some people don’t use their office phones much at all – and rather use cell phones.

How VoIP saves our dept. money:

The Physics department is saving money on the Monthly Recurring Charges charged by UCSB Communication Services

- For each analog telephone line, the department pays the monthly fees of $17.50 plus a $5.00 Data/Networking Surcharge for a total of $24.
- Using the dept. VoIP system, the department only pays the monthly fees of $24 for each of the 12 channels on the PRI trunk, and an additional $1.60 per DID (Direct Inward Dial) phone number routed to the VoIP system.
- There are currently no savings on long distance because long distance service is still provided by Communication Services per university contract.

Technical Details:

- Hardware:
  - 1 Dell PowerEdge 2850 (primary server)
  - 1 Dell PowerEdge 1950 (secondary server)
  - RedHat Enterprise 5.4 dual PRI to Ethernet Bridge w/ Echo Cancellation
  - HP ProCurve 2610 PoE switches (use dedicated private voice VLAN)
  - 3 x Digium TDM400p card for backup analog connections (FXO)
  - SIP Telephones: Aastra 9133 & Aastra 9408DCT (cordless)
- Software:
  - Asterisk 1.4.22
  - FreePBX GUI 2.5 (used to manage Asterisk dialplans, DIDs etc.)
  - MySQL (cluster mode) to support shared FreePBX db
  - DASH 2.0 (telephony drivers)
  - Linux HAI/Headset (for High Availability)
  - Fomenter (Redfone configuration data)
  - CynaV for sychronizing relevant configuration data from primary to secondary

Contact: Jennifer Martin – jimart@physics.ucsb.edu

Facilities and Campus Design

This is a summary of computer-related activities and technology initiatives currently in progress in our Facilities and Campus Design Department’s computer systems.

1) Completed Terminal Server migration, from individually installed workstation software, to multiple centralized server software.
2) Conversion from existing department run FDOI Network, to campus maintained Backbone, for Networking.
3) DBMS migration, from multiple DBMS varieties, to a common DBMS, which is Microsoft SQL Server.
4) Addressing departmental and campus requirements to replace older and less efficient applications. Our objective is to provide effective control, interface, timeliness, maintainability and reduce redundancy, for multiple existing systems and stand-alone applications. Current applications in progress are:
   a) Time Keeping/Time Reporting System
   b) Facilities Management Accounting System.
   c) Stock/Inventory and Purchasing System.
   d) Invoic Ledger System.
5) Installed web-based vendor applications to replace existing systems/applications in the following functional areas:
   a) Construction project management and tracking system, which is internally and externally accessible by our Campus Design staff, and outside contractors.
   b) Work Request/Project Request/Work Order Management System, which is internally and externally accessible by our Facilities Management staff. Campus Design staff, and departments throughout the UCSB campus.
   c) Currently in the implementation phase of migrating our Lock and Key Management System, from an existing in-house developed system, to WebWork. (Toros Consulting)

Contact: Dick Schmidt - Richard.Schmidt@fm.ucsb.edu

Office of Research Application for Human Subjects Research OARahs

Over the past year, the Office of Research has been working with faculty & staff to develop an online human subjects application process (OARahs). This system will provide:

- real-time access to the status of protocols
- web-based accessible anywhere
- upcoming expiration notices at 14 and 30 days
- automatic notices when the protocol has expired
- streamlined renewal process
- automated agenda for IRB committee
- integrates with Contract and Grants application
- improves communication between the Human Subjects Committee and investigators
- increases the University's ability to maintain compliance with Federal Regulations

Written in .NET 3.0, C# for MS SQL 2005

Contact: Chris Sneathen, Project Manager, sneathen@research.ucsb.edu Brett Fortier, Programmer Fortier@research.ucsb.edu

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