

# **UC IT Guidance Committee**

## **Notes from Campus Visits**

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**June 2006**

# ITGC Campus Visit – UC Berkeley

## May 24, 2006

On Wednesday, 24 May 2006, CDL University Librarian Daniel Greenstein and UC Chief Information Officer Kristine Hafner, two members of the UC Information Technology Guidance Committee (ITGC), visited the Berkeley campus to gather information on behalf of the committee. Campus hosts for the meeting were Thomas Leonard, University Librarian, AnnaLee Saxenian, Dean, School of Information, and Shelton Waggener, Associate Vice Chancellor, Information Systems & Technology, and Chief Information Officer.

The ITGC charge is to identify strategic directions for IT investment in support of the University's mission, promote technological innovation, and leverage IT investment and collective expertise for the enhancement of academic quality. In order to extract high priority initiatives to support the future, over the next year the ITGC will be working to answer these questions: What's good? What's lacking? Where are we now? What's out there? Through working groups and meetings with the various UC campuses, the committee will flesh out themes for recommendations to the Regents. This meeting was convened to discover the priorities for UC Berkeley from the perspectives of administrators in key leadership positions across the Berkeley campus.

UCB campus representatives in attendance included:

- Patricia Donnelly, Chief Information Officer & Director, Information Systems & Technology (Law)
- Elizabeth Dupuis, current Head of Instructional Services (Library), newly appointed Associate University Librarian for Educational Initiatives & Director of Doe/Moffitt Libraries
- David Greenbaum, Director of the Interactive University Project, Acting Director Data Services (IST)
- Bernie Hurley, Director for Library Technologies, Director of the Northern Regional Library Facility, Interim Associate University Librarian for Collections, Chair of Systemwide Operations & Planning Advisory Group
- Lee Leighton, Associate University Librarian for Technical Services
- Christina Maslach, Vice Provost for Undergraduate Education
- Tessa Michaels, Chief Technology Officer, Executive Director for Business & Technology Solutions
- Katherine Mitchell, Organizational Development Consultant with COrE
- Craig Moritz, Professor of Integrative Biology, Director of the Museum of Vertebrate Zoology
- Merrill Shanks, Professor of Political Science, member of the Committee on Computing & Communications (COMP)

- Isabel Stirling, Associate University Librarian for Public Services, Interim Associate University Librarian for Doe/Moffitt Libraries
- Ruth Tringham, Professor of Anthropology

The meeting agenda included open discussions of the following topics:

- The explosion of digital content and management challenges
- The role of technology scholarly collaboration, outreach, and public service
- The changing role of Administrative computing in support of UC Berkeley

Interests and priorities as expressed by attendees whose responsibilities included:

Creation and shared use of digital information; managing digital content;  
 Explosion of materials in general and how to leverage;  
 Developing and protecting collections; developing collaborative models for sustaining digital collections fundamental to teaching and research;  
 Providing ever growing micro data; statistical computing usage; need for analytical tools/random sampling for use on yearly basis, with sustained funding; collaboration with 65 other universities;  
 Data services for both administrative and academic; cyber instruction modeling;  
 Coordination and support for systemwide collaboration; more integration of systems; need to develop next generation infrastructure;  
 Convergence of IT strategic planning; assistance for IT needs in smaller academic departments;  
 Educational technology services for teaching and learning at UCB; all kinds of learning technology; new ways of doing things systemwide; maintaining support for webcasting and podcasting; faculty and curriculum development;  
 Purchasing digital collections; technical services processing of library materials;  
 Providing infrastructure project by project; dealing with units across campus with similar problems; materials subject to loss; need for cohesive architecture (in past, inflexible and restrictive architecture; now, mass distribution with local solutions and deterioration of smaller environments).

Campus priorities from the Berkeley perspective included:

More strategic action as a system; utilizing the systemwide potential; leverage talent and expertise to build a more collaborative models; more action to develop and share teaching tools; contributions toward a flexible systemwide environment;  
 Faculty needs to collaborate around the world, not just across UC campuses;  
 OP assistance with intellectual property and copyright solutions; legal and business partnerships; pedagogical tools; OP investments in shared collaborative initiatives;  
 Active leadership from top administrators; “first, do no harm” systemwide; do not develop systems more elaborate than necessary;  
 Unified response by the UC system (vendors understand campus competition, use to their advantage);  
 Design solutions locally that can be adapted to other campuses; start with base layer and build upon it;  
 Build and share more open source models; go from closed/proprietary to open;  
 Incentives (monetary or otherwise) to share content;

Customize to meet legal requirements;  
Senior level administrative muscle: advocacy, staffing, funding.

It was noted that while inverting IP is an important concept, the next generation infrastructure is already in place with publishers. It's a business problem to free up content in order to build indexing tools.

Use CDL model for shared content, licensed as collaborators.

Start thinking about freeing up metadata for access and not licensing by silo model.

Develop a more pro-active not reactive position.

Provide benchmarks to indicate our current position.

Look at Indiana model, integrated IT into academic; investment strategic/leveraged across projects.

Sustainable models necessary to obtain large grants. Collaborate broadly.

Big ideas need infrastructure, funding by co-investments, and trust by participants that contributions yield more through collaboration.

OP look across all campuses for classroom needs; systemwide level process for funding classroom instruction (old formula no longer works/base funding levels inadequate).

Develop metrics to assess outputs of education (shift from inputs to outputs).

Measure effectiveness of teaching and assess students' learning.

Accreditation changing—rethink higher education for shared answers – asset in strength of the system.

Change in pedagogical focus – collaboration allows students hands-on learning.

Faculty research is leading edge for their teaching; more seamless transition from research to teaching.

Look at common research and scholarly needs.

Develop more systematic map of where we're going systemwide.

Concentrate on not lagging behind / shift institutional thought process.

Students concerned about connectivity to multiple networks; accustomed to low priced, readily available infrastructures; bring their digital technologies with them.

Embrace it and build upon it.

Augment what they have.

Blend into our institutional tools.

Build a framework that expects content to change.

Acknowledge the fundamental disadvantage if we do not create systems that recognize these digital environments.

Trend in grants: cross-institutional, multi-disciplinary, structured for collaboration.

Develop talent and invest in staff development.

Aggregate our own resources, both faculty and students.

Create flexible work environment that continually evolves.

Develop tools to help find things wherever they exist, to organize findings, and to collaborate.

Figure out how to pull into single system and collaborate among multiple systems.

What do we want to achieve by having a system?

Keep it simple.

Not around control from the center; enhance the value.

Underscore issue of permanent funding.

Provide funding for iterative approach.

Common roles and definitions

Look at whole compensation issue.

Technology must change the culture. (Pace of change exacerbates the pain of not moving forward.)

What makes it worthwhile to give up some autonomy for benefit systemwide?

Monetary incentives.

Campuses co-invest in the process to receive the service w/full-time, specialized personnel.

Aggregating needs to move programs forward.

Lower the barrier to entry and lower the barrier to exit to build confidence/increase comfort.

Trust is built over time, with iterative approach.

Hope that ITGC can recommend some governance mechanism. The IT Leadership Council is responsible for the repository/registry. More things developed by UC used by institutions outside the UC system. Shared licensed pools all owned by Regents; purchasing should be able to aggregate licenses.

Should the University do more to standardize on the administrative side to redirect resources to academics?

Eliminate some legacy systems.

Set standards for future that acknowledge the role of the central.

Design toward the standards, resulting in costs for maintaining legacy systems.

Costs/risks versus opportunity costs.

Build in incentives.

Move forward with 80% buy-in.

At Your Service has evolved and improved over time.

Move to a unified chart of accounts.

A new HRMS system.

Online Bio-Bib.

Student admissions that feeds into individual campuses.

Undergraduate application process.

Student systems, life cycle from entry to exit.

Graduation tracking.

UC catalog of web services for use by all; allow autonomy for individual components; use local resources to solve local problems and place in system repository for all to use. Collaborate in areas of commonality and customize for local needs.

Demonstrate the value of moving in this direction and downside of not moving – loss in academic standing.

Growing demands for technology from new faculty and students.  
All deans now shifting focus to fundraising – continual struggle for funding.  
People w/decision-making authority need to understand the importance of cyber infrastructure.  
Use language that senior administrators understand.  
Find something of value to senior administration – forecasting / hindsight.  
External reviewers to give opinions and carry weight.  
Engage faculty.  
Determine what we can do in the areas that we can control.  
Provide analysis of where we spend resources.  
Emphasize technology as strategic (currently viewed as overhead cost).  
Be prepared with recommendations.  
Leverage the current environment to get IT on the agenda.  
What does success look like? Provide the metrics.  
Provide examples of IT systems and collaborations that have worked and how that was achieved.  
Demonstrate the value of IT – across campus communities – to lessen inequalities.  
Write report that is useful to campuses (regardless of what happens at OP).  
Focus on what we need to do first, then the risk of not solving the problem.  
Decide on the message... a clear message, tailored to the champion.

# ITGC Campus Visit – UC Davis

May 16, 2006

## IET Leadership Council

### Campus Strategic Goal

- We should be looking at addressing what we can't do now and what the barriers are. The funding picture is interesting only as a barrier. We need to ensure that we consider the cost of maintain and operating systems, not just implementing them.

### User Expectations / Areas for Development

- UC needs to be more involved in community source projects like Sakai, MyInfoVault, and Kuali. It enables alignment of IT system development priorities with the University's mission, while not isolating the University with home grown software.
  - How UC participates in large community source projects, such as Sakai, will depend on where that project is in its life cycle. A specific UC contingent may make more sense for new projects, rather than established projects.
  - We need the ability to create and coordinate these communities.
  - The ITLC should coordinate and set priorities.

### Strategies for Coordinated/Shared Solutions

- It makes a lot of sense to use an Application Service Provider (ASP) model for intercampus support of IT systems.
- Interoperability protocol and format standards are crucial. We should not, however, be looking for 100% compliance with systemwide directions. We gain a lot of benefit from 70%-80% compliance, at much lower effort.
- We should document what has worked (*e.g.*, CENIC, CDL, Effort Reporting).

### Challenges

- UC Davis is, in general, underspending on IT when compared with other R1 universities.
- There is a tension between campus and systemwide priorities. This could, perhaps, be resolved by giving the CIOs dual reporting relationships to their campus and to UCOP.

# **Campus Council for Information Technology (CCFIT)**

## **Campus Strategic Goal**

- We should increase the availability of technology-enhanced classrooms.
- Teaching will become “hybrid,” with some activities with the physical classroom and others over the network.

## **User Expectations / Areas for Development**

- Graduate admissions is a departmental activity. Some have automated this, while others still process paper.
  - Departments would be willing to lose some autonomy to achieve more functionality, as long as they could still accommodate to local requirements.
- A graduate student member of CCFIT said that she considers herself a student of UC, not of UC Davis, and would prefer more consistency. A faculty member said that he considers himself to be UCD faculty, until he’s in the Library. Then he’s UC faculty.

## **Strategies for Coordinated/Shared Solutions**

- IT infrastructure is a commodity and should be left to engineers to operate. Planning committees should address needs and use of the infrastructure.

## **Challenges**

- We need to consider the impact of technology on “real” people (instructors, in this case), not just early adopters.
- Concern was raised over UCOP’s ability to move large, systemwide issues forward, citing the lack of follow-on for the New Business Architecture, due to budget problems.

# **Deans**

## **User Expectations / Areas for Development**

- IT is no longer an option. It doesn't make sense for systems no longer to be able to talk to each other.
- There is a need for greater network speeds, particularly for DOE-sponsored research.
- There is a critical need for computer room space to house computing clusters.

- We need collaboration tools, both real-time (video conferencing, white boards, *etc.*) and asynchronous (forums, wikis, *etc.*)

### **Strategies for Coordinated/Shared Solutions**

- The ASP model for intercampus support, where campuses specialize in specific services, makes a lot of sense.
  - Different campuses can be used to beta test different approaches.
  - Across the country, there isn't one obvious model.
- When UCOP collects data (*e.g.*, about graduate admissions), care should be taken to ensure value of that data to the campuses, as well as to UCOP.
- We need to establish software standards.
- We should establish a UC-wide baseline for IT infrastructure. Student fees are a potential funding source.
- The University should establish a public position on its support to K-12, particularly with respect to CalREN.

### **Challenges**

- There is a delicate balance between distributed and central IT. There needs to be flexibility about when to dictate centrally and when to step back.

## **Health Information Systems Oversight Committee**

### **Campus Strategic Goal**

- It's a mistake to have the medical centers share applications that support clinical services. Health care is regional in its nature, so there's little need for interchange. It may make sense to share other business applications, however.

### **Strategies for Coordinated/Shared Solutions**

- UC's investment priorities for IT should be based on specific academic goals.

## **University Librarian, Marilyn Sharrow**

### **User Expectations / Areas for Development**

- Librarians have a long history of working together for the good of the communities they serve. Collaboration and cooperation are hallmarks of effective and successful integration of multiple perspectives and interests.

## **Strategies for Coordinated/Shared Solutions**

To create a sustainable and nimble infrastructure for IT planning and implementation, strategies such as the following are critical:

- 1) identify and use standards for digital file formats to encourage interoperability principles
- 2) develop a systemwide authentication & authorization process and system
- 3) support interoperable video conferencing and collaboration systems
- 4) consider how IT infrastructure and tools support scholarly research and educational communications
- 5) leverage experiments and pilots, such as the Access Grid effort via Internet2, to support the needs of faculty, staff, and students
- 6) identify industry partners who can assist UC develop systems and tools that further the research, educational, and patient care goals of UC

An example of a planning infrastructure which incorporates strategic nimbleness is the use of “skunk works” philosophies to encourage innovation within a large complex organization.

## **Executive Vice Chancellor, Virginia Hinshaw**

### **Campus Strategic Goal**

- We need to stop reinventing the same wheel ten times. We may need to give up a little, but we can use the savings to do something else. The libraries are the best example of this at UC.
  - It should be part of everyone’s job to serve the system’s needs, as well as the campuses’. (We need to pass “Sandbox 101.”)
  - All medical centers should use the same electronic medical record.

### **User Expectations / Areas for Development**

- We need “collaboration, coordination, and connectedness.”

### **Strategies for Coordinated/Shared Solutions**

- UCOP should lead in policy and politics.
- For the ITGC process, we need to emphasize recover of time and money. Faculty can use saved time to pursue their passions; saved money can be more difficult to sell. UCOP has not always been a reliable partner on long-term budget issues.

### **Challenges**

- Our systems aren’t integrated. “A thousand flowers bloom with a number of noxious weeds,” so we spend too much time integrating.

- We can't fix process or policy with electronics. We have to fix processes before automating them.

## High-Performance Computing

### User Expectations / Areas for Development

- There is a critical need for server space on the campus. Systemwide server space may be useful for backup. It currently costs about as much to house and cool computers as to buy them.
- Networking speeds of 1-10 Gbps are sufficient for now. There is no need for researcher-configured networks (*i.e.*, optical circuits) for the attendees, although they saw possible utility for other researchers.

### Strategies for Coordinated/Shared Solutions

- The needs exist now. Don't take 16 months to plan and another 16 to implement.

### Challenges

- 70% of researchers are willing to share their computing resources.
- Data storage issues are very large, terabytes or petabytes, and the management style is not the same as for a web site or a library. It is likely that remote, "live" copies of servers is less expensive than specific backup solutions.
- Industry partnerships do not always work well. Companies often view the University as a marketplace, rather than a partner.
- The SDSC time allocated to UCD is not very helpful. It's not enough to be interesting.

## Focus Discussion on HR Systems

### Strategies for Coordinated/Shared Solutions

- UC needs to "get off the dime" for a systemwide HRIS solution. This will require a good governance structure for the project to ensure that addressing all needs doesn't take forever.

# ITGC Campus Visit – UC Irvine

## May 2, 2006

### IT Common Infrastructure and Administrative Computing

**Campus Strategic Goal:** Attract more graduate students; improve the campus as it expands.

How must IT fit into strategic planning?

- IT development needs to be integral to the process of preparing campus to accommodate growth
- Ensure SR management realizes ongoing maintenance + support costs for IT.
- Enable collaboration with other campuses to achieve economies of scale, stretch admin. computing budget, i.e., through shared disaster recovery, payroll hosting
- Recognize there are initial costs to collaboration; provide seed funding.
- Determine which services are better supplied by commercial sector (without outsourcing customer base), or which by campus; how these services can be integrated

#### User Expectations / Areas for Development

- Users accustomed to Amazon, online banking, e-commerce, other commercial models.
- Users want to obtain services (order software, see pay stub) following these models.
- Users want nonmonolithic services that enable innovation and configurability at the service layer, i.e., Web services oriented approached to supply and use of information services.
- Videostream lectures, TA sessions to students, no images service = great
- move to VOIP, replace legacy voicemail systems
- Replace legacy telecommunications/networking systems with next-generation services that offer unified communications to improve work lives: e-interfaces, Web access, consolidated student billing. What are these services?
- Tools for doing jobs better: project management, asset management, document management, routing, task management, collaboration

#### Strategies for Coordinated/Shared Solutions

- Develop coordinated approach to copyright compliance, intellectual property management, content hosting, acquisition and provision of content for research/teaching; look for new providers, i.e., CENIC for third-party content.
- For administrative and business systems, business officers must inform the development of new system capabilities, working closely with the technologists.
- Focus technology staff effort on innovative applications; shift provision of commodity services (i.e., e-mail) to third-party suppliers

- Utilize open source opportunities (i.e., Kuali) for some shared commodity services; campuses or UCOP could host, co-development of common infrastructure software
- Encourage strategic sourcing to lower costs; ensure systems can track the demand for specific products and services, not just record financial transactions
- Encourage collaboration through federated identity management: student portals, content management systems, universal log-in for e-mail, UC net ID.

### **Challenges**

- Ensure centralized/coordinated/shared service provision does not produce local restraints
- Enable users to effect integration of commercial/campus services or shared services in a meaningful way

## **Instructional Technology and Student Computing**

### **User Expectations / Areas for Development**

- Smart classrooms: digital projectors, appropriately sized screens, provision of images for instructional use in the classroom across all departments/disciplines, tablet PCs for capturing/posting notes; streaming lectures to iPods; audio capture
- Smart learning environment: use of the open Internet, global virtual education
- Training for faculty in pedagogical uses of technology
- Learning models based on what students are doing in the open Internet
- Robust, permanent IT in student residences
- Seamless online services: no visible differences from one unit to another, one campus to the next
- Tools for instruction in languages not taught at UCI, utilize outside faculty
- Tools to help faculty search for and locate shared online materials
- Systemwide searchable image database, repository of teaching materials (to include final products as well as primary evidence/data, works in progress)
- UC side image database ... tools for search/collab....

### **Strategies for Pursuing Innovation**

- Examine what's going to be "smart," transformative in 3-5 years.
- Get participation/assistance from faculty to do the forward thinking, the designing of instructional technology
- Look at student surveys (UCUES, ECAR) – characteristics of next generation students
- Form partnerships for identifying and developing modules, tools, and information services for Universitywide use.
- Commit to sharing results of work with other campuses.
- Learn from institutions successfully deploying instructional technology: Purdue, LANL, UCD, MIT, CMU, Utah State, Stanford, Rice, Virginia
- Convene discipline-based groups of specialists to share and explore ideas
- Labs/competency centers – "show me" – leverage across campuses
- Integrate research and teaching environment

## **Challenges**

- Ensure that IT encourages personal interaction between student and faculty (i.e., faculty Web pages, regardless of institutional affiliation), which is a concern some faculty have about course management systems. Faculty need to retain “personal” ID/space.
- Structure rewards for teaching, using technology (not just research)
- Develop the IT tools in such a way that faculty don’t have to learn new interfaces for each resource or system, or the same resource on a different campus, which eats up their valuable time
- Ensure IT accommodates/embraces rather than complicates interdisciplinary work
- Inconsistent use of web sites/portals – no standards

## **Research Computing and Networking, Scholarly Collaboration**

### **User Expectations / Areas for Development**

- Collaboration tools built around institutional repositories, but not focused on exclusively published work
- Persistent, accessible storage for scholarly work; support faculty working on common data from diverse institutions (within and beyond UC); dataset management
- Comprehensive up-to-date database on what everyone is doing, information about faculty
- Robust tele-presence on each campus to enable collaboration (high definition, low latency tele-presence ubiquitously available across campuses)
- Desktop videoconferencing, Internet phone access, wireless services
- Tools for ensuring security for research data
- Streamlined work functions, elimination of duplication
- Shared services: systems administration, software, storage
- Support and training for users
- Wireless campus

### **Strategies to Support Collaboration**

- Support numerous disciplinary activities with a common infrastructure
- Focus more on collaboration and supporting collaboration than high performance computing – foster communities; desktop video conference tools
- Emphasize collaboration tools and provide professors the support to incorporate them into their normal work.
- Focus on community building through shared services
- Encourage flexibility and reuse of data, software

## **Challenges**

- Goal is to strive for high-quality, fast, ubiquitous access to all sources of knowledge, anywhere, all the time
- Invest in a common infrastructure without constraining local innovation: Support the serendipity of discovery
- Must implement technologies for which faculty have a real and compelling need
- In IT development, keep the big idea in sight rather than settling on the incremental approach
- Large learning curve to deploy IT ... gaps between faculty and students; make it simple.

# ITGC Campus Visit – UC Los Angeles

## May 25, 2006

### Research

[Bill Labate and Margo Reveil gave a presentation about *Computational Computing* – UCOPMayFinal.ppt, and Willemina Wendrich gave a presentation on the *UCLA Digital Humanities Incubator Group* (UDHIG) – 060525UDHIG\_ucop.doc.]

### Campus Strategic Goal

- UCLA wants to lead, but in applications, not necessarily in systems or networking.
- USC = strong competition for research faculty.

### User Expectations / Areas for Development

- Provide incentives for sharing resources. At UCLA, researchers get system management services in exchange for sharing cycles.
- Provide disaster recovery among the campuses
- Leverage local expertise throughout UC.
- Provide better tools and infrastructure for humanities research in multiple languages.
- Develop discipline-specific competency centers.
- Negotiate favorable terms for software like Matlab.
- Campus 10 GB connection – looking for demand & payment model.

### Strategies for Coordinated/Shared Solutions

- Applications should be designed as collections of functional modules, rather than tightly-coupled systems. For example, it would be nice to separate peer review from publishing in eScholarship.
- Provide central services in support of UC grid computing. For example, UCOP could provide a certificate authority for use by all campuses.

### Challenges

- Whoever runs the petascale facility will get 10% of the resource. UC will probably get around that, anyway, due to the nature and volume of our research. Nevertheless, we need to support this kind of research if we want to be in this league.
- It used to be that universities were ranked on the quality of their libraries. Now it's more who has the best technology.
- Humanities research is done in hundreds of languages. UNICODE does not solve the problem.
- Grants in the humanities are small, so expertise does not come as naturally as in the sciences.
- There is a constant tension between sharing and local modification. Open source may help.

# Educational Technology / Scholarly Interaction

## User Expectations / Areas for Development

- We need common authentication.
- UC-wide courses, webcasting, etc.
- Permeable walls for students and faculty.
- We need common infrastructure at all campuses.
- Provide support for student-owned computers. Students no longer need computers to be supplied by the University.
- Revisit instructional technology funding model.

## Strategies for Coordinated/Shared Solutions

- Data repositories provide a opportunity for sharing between research and instruction.
- There may be an opportunity with UCDC. They made a large investment in technology, but it's not used much on campuses. Funding for renewal is being considered now.
- Develop systemwide awareness of who's doing what within UC.
- Support may be local, campus, or systemwide. The more specific the purpose, the more local support should be. Course management is moving from local to campus support.
- Consider requiring some number of online courses for graduation. We're starting to see this in some high schools.

## Challenges

- UC is far behind other systems with respect to systemwide courses. Not all faculty agree that this is a good thing to do. The issue is not really technology; there are also logistical issues, such as when classes start (*i.e.*, on the hour or ten minutes after), semesters vs. quarters, etc.
- It is too hard to use the technology; it requires too much setup. We need to lower the barrier to entry. Disincentives for faculty to use IT. Need RAships for IT classroom support.
- UCLA has lost students to USC, because they could participate better from remote locations and at times of their choosing.
- Funding for instructional technology is an issue. Student technology fees must be applied directly to a course; they can't fund infrastructure.

## Working Lunch: Administrative Systems and Middleware

[Don Worth made a presentation about *UCLA Administrative Systems & Architecture – UCLA Admin IT 02.ppt.*]

## User Expectations / Areas for Development

- Opportunities:
  - Non-differentiating operational problems (fiscal models that foster collaboration, such as effort reporting, HRIS, IBM deal, *etc.*)
  - Disaster recovery / business continuity
  - Standardize systemwide reporting data (metadata directory, transformation engines,

formal data administration?)

- System-wide centers of excellence (perhaps modeled after Applied Security Task Force, systemwide standards for patterns, best practices in data warehouseing, SOA middleware, portals, ...)

### **Strategies for Coordinated/Shared Solutions**

- Controllers support collaboration where appropriate. Effort reporting is a good example. However, effort required has been beyond what everyone expected (*e.g.*, controllers having regular discussions of effort reporting).
  - Financial systems are a possibility, but campuses are at different stages. Quali looks good, but functionality isn't what people have now at UCLA. Possible future is to run a central financial system.
- We should look at enterprise architecture in the full sense to determine where we want to be in, say, 2015.
- Use UC's size to influence vendors to build what we want.
- Campuses running systems for others require responsiveness to other campuses' needs. We should document the cost/benefit of the UCLA-UCOP relationship.

## **Networking, Telecommunications, Messaging**

### **User Expectations / Areas for Development**

- Mobility issues. The University of Wisconsin, Madison has provided access to their wireless network through the city. UC's best strategy might be to negotiate a contract with a wireless Ethernet and VoIP providers.
- In order to help staff retention, consider certification programs, as well as admissions and tuition incentives.
- All UC campuses should have the same external bandwidth. This will also have the effect of bringing non-UC campuses to that level.
- Establish a team that diagnoses system/network performance problems. Also provide training and marketing. CENIC is missing the boat, as they push network research; we need to support innovation overall.
- Pricing is a disincentive. The goal should be to lower the cost of entry; it's not necessary to eliminate cost completely.

### **Strategies for Coordinated/Shared Solutions**

- Describe technology directions (*e.g.* Ymax, 802.16, VOIP,) and how they relate to the University's mission. This will help with campus network planning.
- UC-wide standards for campus network capabilities.
- For messaging, we should be looking at Chandler and ways to enable capability, not necessarily only to reduce cost. For example, it should be possible to schedule a meeting with anyone at UC.
- UCLA network consolidation underway

## Challenges

- UCLA is currently about 25% below market with respect to IT staff compensation. UCLA isn't as attractive a place to work as it used to be; people want financial incentives.
- ID key national/internet peers plus ensue data interchange capability.

## Information Technology Planning Board (ITPB) meeting

ITPB members: <http://www.itpb.ucla.edu/people/default.htm>

### User Expectations / Areas for Development

- There should be commonality among the campuses.
- We need a means for the Academic Senate to archive their discussions for access by all faculty.
- We need infrastructure that supports innovation in instruction. A motivated faculty member can't innovate in an outdated classroom. Also, classrooms need to be more interchangeable; currently, faculty want to stay in same rooms so they don't have to worry about, for example, whether they need chalk or markers.
- There should be support for electronic repositories (for everything, not just for research).

### Strategies for Coordinated/Shared Solutions

- Maintain a focus on priority setting among administration, research, and instruction.
- Leverage UC intellectual property. For example, we have multiple experts on searching.
- We can no longer consider IT investment to be separate from other things. It needs to be part of all strategic investment by the University. We should concentrate on the things that are unique to a university and not to huge corporations. Sustainability models are critical.
- We need to marry resource with required action. You can't have projects that last 6-7 years; technology passes you by.
- For most functional areas, we need to:
  - catch up with the basic infrastructure
  - innovate
  - re-envision the process
- Collaborations require development of a common language for the group. IT projects don't last long enough to do that; we need to develop communities that last longer to disseminate information about what works.
- Maybe the ITGC should not focus completely on technology. Maybe it should also focus on how to model management of intellectual property for the university; fiscal models, social interactions and social networks, trust, *etc.*

## Challenges

- Academic innovations are like points of light. There aren't economies of scale. Over time, however, they can become infrastructure.

# ITGC Campus Visit – UC San Diego

## May 22, 2006

### Network Capacity

#### Areas for Development/ Opportunities

- UC should take a leadership role in NLR to ensure the “big pipes” for research
- Develop big pipes – essential to cluster research and sharing computational capacity, provides security, serves as termination point for NLR connections
- Provide for taking massive amounts of data resulting from grant funded research and ensure capability of storing it and being able to utilize it long term
- Build out the CENIC XD network providing GLIF via NLR; allows UC to compete with other states and regional networks
- Ensure data curation and data repositories built as production centers with failover, professional staff, security, data backup and recovery
- For real-time data replication between medical centers
- Store student projects and e-portfolios for student use over time and from a variety of places
- Provide UCOP assistance in petascale computing proposal and Library of Congress preservation program

#### Challenges

- Need metrics to gauge the impact on science and network usage as connectivity grows

### Collaboration

#### Areas for Development / Opportunities

- Co-lo research computing clusters at each campus for economies of scale, professional staff (vs. grad students and their high turnover), appropriate cooling/power greater security, training and consulting support, data backup and recovery.
- First co-locate on-campus facilities, then use that model to transition to a systemwide strategy. Find a location and build a supported systemwide capability with financial incentives
- Include medical centers in IT Strategic Sourcing opportunities

#### Strategies

- Create incentives for faculty to use campus co-lo facilities: user services staff, long-term data preservation (now required by many granting agencies)
- Conduct a market analysis to assess how we get economies of scale from UC system, the best options, cost of options, priorities

- Conduct systemwide analysis to determine the circumstances under which it serves UC to be competitive as a system, rather than as individual campuses. Define what UC's systemwide priorities are. Identify areas where we are one university.
- Find a kick-start project for collaboration: interdisciplinary projects; a climate data/earthquake data project (politically appealing)
- Start small with a view to scale. Initiatives can involved one, two or a few campuses and grow

### **Challenges**

- Remove obstacles to collaboration and build incentives instead
- Remove obstacles to the slow pace of collaborative projects
- Ensure systemwide efforts don't impede progress at campus level
- At present, IT collaboration is voluntary; every collaboration is a "one-off," requiring recreation of structure and funding model each time

## **Instructional Technology**

### **Areas for Development / Opportunities**

- Define the new, ideal classroom. Involve students/faculty in this discussion. It needs to provide opportunities for practical exploration, for personal teaching styles, recording and Webcasting (or iPods) lectures. It needs to enable teaching of new literacies we want to teach: visual, computation, what else?
- Explore role of podcasting, secure Wikis with authentication, gaming technology, course materials sharing (some skepticism with course materials sharing because of models (i.e., MIT) that have not resulted in active repurposing of content)

### **Strategies**

- Create "skunk works," research and development model for experimental sites to support new technologies in support of teaching
- Provide faculty with low entry points, easy learning curve, support

### **Challenges**

- Faculty fear of technology replacing them, i.e., recording of lectures

## **Administrative Computing**

### **Areas for Development**

- Guidelines for campuses that build administrative applications to encourage development of interoperable (reusable) modules
- Collaboration among medical centers around basic business systems (HR) where real economies are possible
- Data center consolidation
- Publication of accepted standards and platforms (SOA)

**Strategies**

- Build a strategic convergence program so that over ten years, for example, as systems replacement and acquisition takes place, the systems naturally converge; requires campuses to consider standards and other campus installation when choosing new systems – “strategic convergence”
- Identify areas for collaboration

# ITGC Campus Visit – UC Santa Barbara

## May 26, 2006

### Information Technology Board

#### User Expectations / Areas for Development

- UC should be at the table for Quali. There's also a “huge looming issue” for Payroll and HRIS. We need systemwide efforts; it takes years to make things happen, and we haven't started.
- UCSB is involved with Sakai and is integrating it with UCSB's security system.
- There's a systemwide opportunity for collaboration in the following areas:
  - security
  - identity management
  - cluster management and housing
  - travel system
  - anti-virus software licensing
- Infrastructure should be based on common architecture guidelines and standards.
- Take a systemwide look at student IT fees. Students have a sense of fairness.
- UC needs to act like a cartel
- Virtual meetings would save 50% of meetings. The Physics community uses desktop video conferencing, but it's not wide spread.
  - It's harder to setup up in UC than other places.
  - The facilities are old.
  - Nobody owns the service.

#### Strategies for Coordinated/Shared Solutions

- Inter-campus collaborations need transparent decision making, with campus representation on a governance board. CASA has been frustrating because there has not been enough campus interaction.
- Projects like Effort Reporting really help the small campuses. Large campuses pay up-front costs, and smaller campuses can buy in later for operational costs.
- Student services should be even among the campuses. We should not compete, for example, on whether a campus has wireless network access.
- Campus hosting applications, as well as reducing the cost of acquisition, will be a big help. Customer service needs to stay local. Business function are more amenable to outsourcing than, say, Sakai.
- Housing clusters is a campus issue. Some clusters can be housed centrally, but others cannot.
- Establish base-level services with appropriate funding models.

- We need to look at hybrid solutions. Not all campus are likely to adopt common systems at the same time; all ten campuses is too high a standard. Opportunities present themselves when campus people with same job are communicating. Student services technology people who support enrollment, admissions, and financial aid are meeting in the Fall. Attendance is being limited to 10 per campus.
- Consider funding cycles. It's easier to fund with a few years' notice.

### **Challenges**

- Strategic sourcing is great, but there is no way to capture the savings at a campus level.
- UCSB has sufficient cluster and network capacity. In the long run, though, more investment in research infrastructure will be necessary.
- People try to replace equipment on schedule, but there's a problem when the budget gets lean. It would be helpful to get more guidance on life-cycle costs. Student Affairs is pretty good at keeping current, but other areas are not so good; 3-5 year schedules have become 5-7. There's a digital divide on campus.
- Some faculty are concerned about students with laptops in classrooms. Instructors can't tell if the students are paying attention, as they could when students were reading the campus newspaper.
- There's a history of mistrust.
- The University Librarians control campus library budgets; this is not true for IT.
- Some services that are commodities. They have to be there, but their only impact on you is negative. They only hurt you when they aren't working. They don't give you a competitive edge. What you want to do is to focus effort on those things that give you a competitive advantage and commoditize the others. The difficulty in commoditization, though, is that end users (email is example) don't see the benefits (they just get the same service) so it is hard to sell the change.

## **Stewardship of Digital Assets**

### **User Expectations / Areas for Development**

- UCSB research groups, such as the National Center for Ecological Analysis and Syntheses and the Institute for Computational Earth Systems Sciences, generate large and widely-varied data sets. These all need careful stewardship and long-term funding strategies.
- The Automated Vital Statistics System maintains personally identifying information (PII) that needs protection. Data security (research & others) is a major risk.
- We need a way to reward academics for sharing data in repositories. Currently, many do not want their data stored remotely or by a remote organization.
- Experience at Tulane shows how UC needs to provide backup / recovery services. Needs of research are different from administration. Libraries have this problem, too.
- Consider how work flow (starting from initial creation of data sets) could enhance data preservation.
- Need work on how to relate diverse data sets. Establish/encourage common metadata standards within academic disciplines. Build a collaboratory to do science.

### **Strategies for Coordinated/Shared Solutions**

- The issue of who pays is very important. It's not clear the University system should pay for everything. It's a national issue, but UC could take a lead in driving the discussion.
- Use pilot projects to identify common needs.

### **Challenges**

- It's hard to predict need for live access to archived data.

## **High-Performance Research Computing**

### **Campus Strategic Goal**

- UCSB likes to be around 4th-5th in line among the campuses.

### **User Expectations / Areas for Development**

- A UC Grid is “inevitable,” as campus recognizes the need for a new model.
- Provide cluster support services, as well as co-location.
- A small number of faculty could use 10 Gbps. 10 Gbps would position to compete.
- UC researchers to need tools interact with global community.

### **Strategies for Coordinated/Shared Solutions**

- There's a lot of mistrust of central services. Put ownership in the hands of researchers.
- Use pilot projects to explore federation agreements (for computing resources).
- Emphasize life cycle and sustainability models. We need to put things in place and fund them to persist, rather than becoming problems for the future.
- Participation in shared resources has to be voluntary. Use incentives (*e.g.*, services) to encourage cooperation. A grid enables sharing on a voluntary basis.
- Share information about other campuses' needs for space, HVAC, *etc.*

### **Challenges**

- One of UCSB's big campus challenges and drivers is that it is competing in the top tier (18<sup>th</sup> in NSF funding, within the top 20 of 5 NSF directorates, and top DOD funding within UC) but doesn't have the infrastructure to support it.

# ITGC Campus Visit – UC Santa Cruz

## May 15, 2006

### Graduate Studies, Academic Affairs

#### Campus Strategic Goal

#### User Expectations / Areas for Development

- Students are completely tied to the web.
- Need quality video conferencing, not just at one location on campus.
- Need more bandwidth.
  - People send PDFs without even thinking about it.
  - Security video 24x7
  - Animation clips
- UCSC has computing clusters for the genome and climate change projects. Need a major campus center.
- Faculty have a hard time keeping up with use of IT. They need quick (15-minute) tutorials at the time they need the information, which is probably not during normal business hours.
- Students want to reach their instructors, or talk to each other, 24x7.
- 70%-80% of students think podcasting of lectures is desirable, but only 20%-30% of faculty do. The people who listen to recordings tend to be the people who attended class.
- Electronic journal access is needed. UCSC doesn't buy into all packages (*e.g.*, not law or medicine) but some researchers still need them.

#### Strategies for Coordinated/Shared Solutions

- Don't end with a report; we need implementation. “If there aren't any resources, don't waste our time.”
- Consolidate and share vendor information at UC end.

#### Challenges

- UCSC has partnerships w/ Silicon Valley, research w/ Fort Ord/CSUMB, other campuses, and other countries.

### Application Solutions

#### Campus Strategic Goal

- We tend to lose perspective of the University's mission. It's not Payroll.

### **User Expectations / Areas for Development**

- Highest priorities from academic divisions were content/document management and academic/course planning.
- User authentication is important.
- Student evaluations
- Contracts and grants

### **Strategies for Coordinated/Shared Solutions**

- There a potential of sharing applications and services systemwide using an ASP model.
  - UCSC hasn't participated in the Effort Reporting project; budget inhibitors to deployment. Also, the new system would require higher-level staff.

## **Student Affairs**

### **Strategies for Coordinated/Shared Solutions**

- Need communication among people who work w/ IT (or are victimized by it)
  - Student Affairs people do talk, but they talk about suicide prevention, disaster preparedness, *etc.* "IT is a third rail."
  - OP could provide forum for communication
- OP could provide informed, neutral critical information (not from vendors) about what's going on in IT.
- Need to integrate student affairs planning and IT planning.

### **Challenges**

- We're not ready for a large leap forward. Student Affairs' structure does not facilitate working together. Everything is in silos (admissions, financial aid, ...) , in the areas of systems and organizations.

## **Planning and Budget, Business and Admin. Services**

### **User Expectations / Areas for Development**

- IT Solutions must map to academic priorities.
- We need to standardize and share efforts, but also need to accommodate to individual campus needs.
- Potential areas for sharing include:
  - Quali
  - collections
  - payment
  - eCommerce
  - clearinghouse for information
  - disaster recovery, business continuity
  - records management

### **Strategies for Coordinated/Shared Solutions**

- The IT community needs to be involved with HRIS development.
  - IT is not the solution, it is an enabler to the HR function.
- We need incentives to cooperate, to change the culture and manage risks campuses could specialize for specific services.

## **Senior Managers from IT, Library**

### **Campus Strategic Goal**

- We need to make faculty more competitive in getting extramural funding (computational clusters, ease teaching large classes). “Follow the money” ...

### **User Expectations / Areas for Development**

- Federated authentication and ID management. We need to be able to verify current status.
- Content and record management are a good area for IT / Library collaboration.
- Wireless for faculty.

### **Strategies for Coordinated/Shared Solutions**

- Look for and eliminate the biggest cost/benefit yield and irrational duplication among campuses to make way for new systems. Think and act “digitally”.
- We need to concentrate on the needs of faculty (*e.g.*, a technology resource center for faculty).
- Leverage the entire UC system in vendor relationships.
- Open source provides opportunities for sharing (Sakai, Quali).
- Address faculty compensation for sharing.
- Anticipate future UC IT infrastructure needs and build it.

### **Challenges**

- It's difficult to coordinate w/ faculty due to recentralization and research priorities.

## **Office of Chancellor, EVC and Campus Provost**

### **User Expectations / Areas for Development**

- Santa Cruz needs to be on the CalREN ring. Large-scale computation (astrophysics, geophysics) suffers from lack of connectivity. Need more Internet bandwidth, as well as lambdas, for research faculty.
- IT figures in all student-related endeavors (instruction, services, ...). Need UC-wide strategies to leverage IT investment. *e.g.* students need Amazon-like services.
- Alumni tracking could scale well.
- Virtual videoconferencing
- Common student records and systems.

- Standards for information sharing.

#### **Strategies for Coordinated/Shared Solutions**

- UC needs common solutions, but not mandates. The CDL has had success w/ creating opportunities (co-investment), rather than unfunded mandates.
- The success of central funding for IT would depend on implementation governance, and transparency. Need new budget model.
- It's important to decide where systemwide contract deals are needed, and when they're not (*e.g.*, iTunes University).

#### **Challenges**

- IT is probably more crucial for administration and research than for student systems.

## **IT Committee, Academic Senate**

#### **Strategies for Coordinated/Shared Solutions**

- We need better institutional research and data management. This means better portability of data sets, better tools for sharing data, data mapping analysis.
- If one campus has a good graduate admissions system, all campuses should use it and put their efforts into other issues. Need to focus on faculty research mission.

#### **Challenges**

- We're lagging in how to use communications tools effectively. Electronic mail is not the best way to manage administrative work flow.
- We need to recognize that there are two roles with respect to instruction, the course designer and the course "performer" (the teacher) growing gap between faculty and students re: use of IT.
- There's been an artificial division between academic and student services sides of the house. This makes it difficult to foster a sense of community among students.

## **Information Technology Committee Divisional Liaisons**

#### **User Expectations / Areas for Development**

- UCSC needs a full-fledged connection to CalREN.
- Ideas for systemwide activity:
  - More collaborative access to high-performance computing. SDSC is not

utilized much.

- A central UC backup storage location.
- Systemwide licensing for Windows, Macintosh, Word, Matlab, Mathematica, SAS, SPSS, *etc.*
- A UC-managed asset management system.
- A requirement that freshmen enter with their own computers. 96%-98% of incoming freshmen already do. This could reduce spending on computing labs.
- Training for user consultants in specialized areas.
- Modified material management policy to facilitate donation of old computing equipment to K-12.
- Open source desktop solutions (*e.g.*, OpenOffice).
- UC-side financial system (overtime).

### **Strategies for Coordinated/Shared Solutions**

- We should consider equity issues among the employees supporting IT. Some people at UCSC make less than equivalent positions at the local community college.
- The role of liaisons (similar to UCSC's liaisons) could be useful systemwide.
- Modify IS-10 system development guidelines to encourage intercampus sharing and open source.
- Be careful of good ideas from UCOP that require large local investment.
- Encourage collaboration.
  - Provide tools to enhance collaboration, both real time (*e.g.*, video conferencing) and asynchronous (*e.g.*, mail, wiki).
  - Collaboration needs to be part of everyone's job description. It's not just a time sink.
  - UC could use "cohorts" mailing lists (*e.g.*, Mac or Linux experts).
- Neither a highly-centralized or a highly-decentralized approach will work. We need a hybrid approach.
- One campus save as an application service provider to another.