UC IT Guidance Committee
Focus Area on Common IT Architecture
Report for the ITGC meeting on September 18-19, 2006

A. Background/process details:

1. Charge:

The ITGC will explore the potential deployment of common IT infrastructure to improve functionality and productivity, assure interoperability, simplify operations, and reduce costs. It will also explore collaborative service delivery and funding models to support, develop, and sustain this infrastructure. Examples of such information service utilities include identity management, portal-building tools and services, middleware for grid computing, services that support the University's business and academic functions, services that support strategic planning and decision making, *etc*.

Initially, specific work by the Common Information Technology Architecture Work Group will primarily focus on architecture for services that support the University's business functions. All work groups will, however, recommend strategies that affect the common architecture. That work will be synthesized in a second phase.

2. Membership:

- Arlene Allen, UCSB
- Marina Arseniev, UCI
- Peter Brantley, UCOP/CDL
- Russ Harvey, UCR
- Bruce James, UCOP
- Rich Kogut, UCM - Chair
- Nick Redingius, UCLA
- David Walker, UCOP - Consultant

3. Work Plan

a) Our overall strategy is to draw on the expertise of the campus CIOs and information technology architects using the Information Technology Leadership Group (ITLC) as a vehicle, to interact with the other ITGC workgroups to ensure that we are addressing requirements appropriately (and to identify boundaries of scope), and to draw on the reports from the ITGC campus visits to identify campus issues, requirements, and concerns. We have also identified liaisons with the groups looking at Kuali and potential HR initiatives.

b) Our initial meeting was on 8/18/2006, where we reached broad agreement on general principles, started to establish the full list of issues we need to address, and decided how we will proceed. The group will primarily work electronically, and schedule conference calls as needed.

c) The first day of the Sept. 12/13 ITLC meeting will be devoted to a workshop on architectural principles and examples of best-practice UC campus implementation projects as well as a presentation by CSU. Campus architects will be attending this meeting. The day will be framed by discussions led by the IT Common Architecture work group, and we expect that we will leave this meeting with a good consensus.
d) Following that meeting, we will schedule conference calls with the other ITGC work groups.
e) In the Fall, we will try to develop a good draft of a Powerpoint summary of our conclusions and recommendations, and then work on a detailed, supporting report. Our hope is to deliver this relatively early so that it will be available to the other work groups as they develop their own reports.

4. Potential proposals:
   a) Creation of ongoing IT architecture/standards committee
   b) "Hybrid" deployment model for system-wide applications
   c) Continued deployment of UC Trust
   d) Adoption of PPS "SOA wrapper" proposal
   e) Integration of administrative & student IT groups at OP
   f) System-wide integration broker
   g) System-wide data warehouse

B. Analysis

1. Assessment of the current UC environment

A small number of applications are developed and/or run centrally (PPS, Benefits, Student Application); most are developed or procured and run on individual campuses with mandatory feeds or reports to UCOP. Substantial financial resources go towards deploying, supporting, and operating these applications. Some of the local instances or aspects of applications provide unique or strategic value to the campuses; others provide pure commodity functionality (e.g., general ledger).

At the same time, campuses are embracing portal technology, with the goal of integrating applications, be they local or central, into a locally controlled and "branded" site. UC Trust is beginning to allow campuses to access system-wide and each others' applications using local ids and passwords (access to At Your Service is an example). These applications potentially include research facilities such as grid computing, visualization labs, etc. The sharing of facilities and applications is fostered by the availability of high speed networks (CalREN2) and emerging standards for interoperability.

2. Issues, Opportunities, and Challenges

The push towards integration across applications is accelerating due to demand for usability and to provide functionality that spans multiple application areas. IT organizations are challenged to keep up with the ever increasing demands on them, and are looking for opportunities to share costs across the system.

Current technologies give us the opportunity to fundamentally reconsider the central vs. campus implementation dichotomy. We can deploy hybrid applications that have components sourced in different locations. That would allow us centralize commodity components while campuses focus on components that are strategic or unique to them. It could also greatly simplify the data interchanges, and ultimately, reporting requirements between the campuses and UCOP.

Clearly identified standards and architectural principles are essential to enabling these kinds of deployments. Those same standards will also foster the sharing of applications (and web content) developed on the various campuses.

Additional technologies (integration brokers and data warehouses) provide other opportunities for simplifying data integration across the system and making information available in real time to planners and decision makers. These facilities would also reduce the burden on the campuses to create feeds and reports – all of the data could be available to OP on a routine operational basis.

Funding is always a critical IT issue. Investments in IT often result in non-fungible advantages outside the IT department (improved productivity, slower growth of staff needs, …), but rarely in recoverable cost savings. Whether we continue on our current path or implement some or all of our proposals, investments will need to be made within the IT organizations. Our challenge is how to make these investments strategically so as to obtain the highest payback over the entire system in the long run.

Post-meeting supplement

A. Key questions presented to ITGC for discussion

- The group was asked for reactions to the material presented by Rich Kogut.

B. Outcomes from ITGC discussion

<u>Interoperability Standards and Platform Standards</u>

- In order to facilitate sharing of software within UC, we should consider platform-oriented standards, as well as service/protocol standards.
- We need standards to foster interoperability with the rest of the world (industry and higher education), not just within UC. There should be good examples for UC to follow.

- We should participate in standards organizations, such as IMS. We need to bring UC into the global community.
    1. Standards orgs are good, but do we need to participate, or rather follow the professional interpretations of standard bodies?

2. I'm unclear that IMS is grabbing higher education (or a significant body of anyone). OASIS and Liberty will keep us busy.
3. I worry about de facto non-standards adopted as standards because we see others in higher education adopt them.

Adopting a Service Oriented Architecture

- A service oriented architecture allows applications to be designed as a collection of components, some of which will be of strategic importance to UC and some will not. We need to stress this issue in the report.
- We need to adopt strategies that deliver end-user services, not just infrastructure.
    1. I would like to second that and emphasize that the development process itself be based upon business process models that are mapped on top of our technologies menu for delivery.

Advocacy

- We need strong advocacy for IT standards and guidelines. In particular, we need a commitment to the use of UCTrust for authentication by UC applications.
    1. Agreed. Tip of the iceberg though. Think of what one needs to agree upon to create a DR site. It puts standard platforms, topologies and technologies into perspective in a hurry.
    2. Many of us have pursued technology consolidation initiatives from a financial perspective. We can pursue consolidation from a design model perspective, with the result being part of the architecture question. The other part of an architecture is the process whereby it continually reinvents itself, but first things first.

Clinical IT Systems

- IT systems that support clinics and medical centers are ripe for the use of a common, service-oriented architecture.

The HRIS Initiative

- The Human Resources Information System (HRIS) initiative represents an opportunity for embarrassment or success. The HRIS system must be our first example of doing things right. The Employee Self-Service Initiative (ESI) is another good example.
    1. I'm thinking the LMS will be a simple precursor to HRIS. This will give us an opportunity for design in a non-critical space.

Other Issues

- Service continuity and disaster recovery need to be part of UC's IT architecture.

- The emerging distributed service deliver model requires distributed training. Web-based training needs to be an integral part of the service delivery model.
- A service-oriented architecture allows multiple campuses to share a single instance of a business function, rather than each operating their own. We should consider an extension of that thinking to other applications, such as authentication, interoperable / shared calendaring systems, and electronic mail.

C. Next Steps

- The group will continue to address the issues raised in the presentation and the following discussion.

- There's a lot to do in this area. We need to identify 2-3 highest-priority items.