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Exploration Of Partnership Opportunities For Campus Collaborative Tools - Final Report

1. INTRODUCTION

The Campus Collaborative Tools Partnership Investigation Committee was formed to explore Google Apps for Education, Microsoft Live@EDU, and Yahoo!'s service offerings, to determine if these vendors' offerings in the areas of mail, calendaring, and web based file sharing are a reasonable alternative to UCB running these services locally (via the current CalMail, WebFiles, and CalAgenda services). Note: Yahoo has chosen not to participate in this area, and therefore did not participate in this investigation.

In addition to examining the benefits and drawbacks of outsourcing campus messaging services, such as email and calendaring, to one of these vendors, the committee also explored their associated collaborative tools offerings, such as collaborative writing; social bookmarking; photo, audio, and video sharing; and mapping, which may also be of considerable campus interest. This larger topic was briefly examined by the Committee; some suggestions for future work in this area are proposed in Section 6.

The output of the effort is this report, which:

- Describes some of the key characteristics of the partnership options - web-hosted services offered by Google and Microsoft that provide email, calendaring, and file sharing - that were explored by the committee;
- Identifies issues, such as functionality, cost, and privacy, associated with those options; and
- Provides recommendations about the near-term desirability of pursuing outsourcing of campus messaging services.

The last section of the report also:

- Offers some suggestions about potential next step strategy development related to campus messaging services and collaborative tools.

We expect this report to inform any future campus discussions on the desirability of partnering with a vendor to deliver messaging services. If this sort of partnership becomes feasible and desirable at a future time, the data generated by this committee might be used as a starting point in a follow-on effort to select a vendor for these purposes - whose selection would not be limited to Google or Microsoft - and to develop a service agreement with that vendor.

This report contains the following sections:

1. **Introduction:** The background of this effort, including the list of committee members and the motivations for the work.
2. **Alternative approaches:** The various alternatives for delivering this next generation of collaborative tools to the campus community, of which the partnerships being investigated here are one option.
3. **Web-based platform providers:** Details about the offerings from Google and Microsoft and what this sort of partnership could potentially offer to the campus.
4. **Opportunities and Concerns:** The opportunities and concerns presented by these partnership opportunities.
5. **Recommendations:** The decisions reached by the committee.
6. **Potential Next Step Project:** Potential future steps for the campus in this realm.

7. **Appendix 1: Introductory letter sent to Google, Yahoo, and Microsoft:** The letter sent to vendors explaining the goals of our investigation
8. **Appendix 2: Examples of collaborative tools other than email, calendaring, and file storage:** Several examples of collaborative tools being developed that go beyond the capabilities of email, calendaring, and file storage tools.

1.1 COMMITTEE MEMBERS

In late 2006, a committee of senior campus leaders and technologists was formed to review the desirability of outsourcing campus messaging services, particularly email, to an outside vendor. The committee's members were:

David Greenbaum, Co-chair
Director, Data Services, Information Services and Technology (IST)

Michael Green, Co-chairman
Manager, Infrastructure Applications, Infrastructure Services, IST

Susie Castillo-Robson
Associate Vice Chancellor, Office of the Registrar

Ian Crew
Supervisor, Collaboration Services, Data Services, IST

Paul Fisher
Principal Email System Administrator, Infrastructure Services, IST

Eric Fraser
Director of IT, Department of Electrical Engineering and Computer Science (EECS)

Stephen Geahry
Information Systems Manager, Cal Performances

Gabriel Gonzalez
Information Architect, Boalt Hall School of Law

Mara Hancock
Associate Director, Learning Systems, Educational Technology Services (ETS)

Rosemary Kim
Executive Director, Advancement Operations, University Relations

Tessa Michaels
Chief Technology Officer / Executive Director, Business and Technology Solutions

David Willson
Manager, Strategic Technology Acquisition, Office of the CIO

Raymond Yee
Architect, Data Services, IST

1.2 CAMPUS MESSAGING SERVICES REQUIRE IMPROVEMENT

IST is faced with the task of significantly improving the quality of the campus's current, standard messaging services, consisting of central email, calendaring, and web-based file storage.

When this project was initiated:

- The CalMail central email service was challenged by:

- Excessive spam delivered to inboxes.
- Inadequate storage.
- Perceived limitations in the web client interface.
- Somewhat inconsistent end user support for email users.
- The CalAgenda central calendaring service faced:
 - Being limited to a subset of campus employees and a small numbers of professional students.
 - Occasional problems synchronizing data to calendars on desktops and mobile devices.
- WebFiles, central web-based file storage, was hampered by:
 - Severely limited disk space.

Several of these problems have been addressed since the committee was chartered, through changes to the central email service that have eliminated a significant fraction of spam, and significant increases in the disk storage offered to CalMail and WebFiles users. Other service improvements have been proposed or are in preliminary implementation stages, such as expansion of the central calendaring service, CalAgenda, to a larger campus population. Nonetheless, the effort and cost to provide and maintain high quality messaging services continues to strain IST's resources.

1.3 THERE ARE GROWING NEEDS FOR COLLABORATION

Beyond email, calendaring, and other core messaging services such as voice and fax, the campus community is increasingly recognizing needs for advanced collaboration tools. Faculty, researchers, and students are working with one another on research, publications, and public service, often across departmental and even institutional boundaries. Staff and administrators are often engaged in project and service work that requires collaboration and coordination across units. As an additional challenge, these collaborative activities take place not only in traditional meeting situations, but also occur asynchronously, and across great physical distances.

New collaboration tools - including some being developed by the same vendors offering alternatives for the campus's core messaging services, Microsoft and Google - offer promising new approaches to carrying out such work. They range from individual tools, such as tools for sharing word processing documents and spreadsheets online, to suites that offer online "workspaces" for storing and facilitating all of the work on a particular project or service, to real-time tools for virtual "meetings."

At present, there is relatively little central support on the UC Berkeley campus for such collaborative activities. Currently available collaboration tools include IST's CalShare (formerly BearShare), a recharge-based service implemented using Microsoft SharePoint, and the somewhat limited project workspaces in ETS's bSpace, a collaboration and learning environment.

1.4 PLANNING FOR ON-GOING INFRASTRUCTURE OPERATIONS REQUIRES THAT DECISIONS BE MADE

IT units across campus, including IST's Infrastructure Services Department, need to make operational and investment decisions regarding the services they provide. While these departments must keep an eye towards the future, they must also deliver to their clients today (and every day). These groups look to the determinations of the Partnership Investigation committee for clear direction that will allow them to make the planning decisions necessary to carry out their missions successfully.

2. ALTERNATIVE APPROACHES TO MEETING THESE NEEDS

There are several alternative approaches that the campus might take to meet the needs mentioned in section 1, including but not limited to:

1. Making incremental improvements to the campus's existing email, calendaring, and web-based

storage services. Some examples:

- o Implementing further spam improvements.
 - o Increasing storage via campus investments or purchases of storage from off-campus providers.
2. Provide data interchange and directory services and allow users to select internal and external services a la carte that meet their individual needs.
 3. Implementing campus-hosted messaging and collaboration services using open source products. Examples for messaging services include the completed migration of CalMail from a commercial product (CommuniGate Pro) to open source mail server components, and potential future migrations from the commercial products currently used to run the CalAgenda and Cal WebFiles services to open source and/or open standards replacements.
 4. Partnering with a web-based "platform" provider, such as Google or Microsoft to receive "software as a service". (This project started the process of examining this approach.)
 5. Implementing a campus-hosted messaging/collaboration suite from a commercial vendor (e.g. Microsoft Exchange, Oracle Collaboration Suite, or Zimbra) to provide messaging services and/or collaboration services.
 6. Some combination of approaches 1-5.

The committee has focused this phase's activities on exploring option 4, above: partnering with a web-based platform provider. Other alternatives offer great potential, and should be explored in future projects. This committee's work has already helped some committee members realize the value of developing a much broader and comprehensive collaborative tools strategy.

Some *initial* approaches to transitioning to any of the above solutions, other than improving existing services, might include:

- o Implementing one of the alternative approaches campus-wide for email; possibly for calendaring and other services.
- o Implementing one of the alternative approaches for email and possibly other services to specific constituencies only, such as only to students, or only to alumni.
- o Implementing one or more of the alternative approaches as a small-scale test with selected campus communities.

As with any new service to be implemented on campus, any transition process would also have to include work to integrate the new solution with existing campus systems.

3. WEB-BASED PLATFORM PROVIDERS

3.1. WHAT ARE WEB-BASED PLATFORM PROVIDERS?

Increasingly, full-featured applications can be delivered via a web browser, instead of requiring a user to install the software on his or her computer. This is known as "software as a service" (see http://en.wikipedia.org/wiki/Software_as_a_service) and is done using technologies such as AJAX and Flash. These services are run on web-based platforms with massive economies of scale from large data centers, with well-honed server administration techniques.

Vendors like Microsoft and Google are offering bundles of hosted email, calendaring and file sharing services, as well as additional collaboration tools, to educational institutions via this new software-as-a-service model. The services are generally offered free-of-charge to the universities, based on business models that hope to drive traffic to vendors' search engines and other services to build loyalty. These services are typically free of ads to students, and ad-supported for staff, faculty, alumni. There are options for fee-based services without ads for staff, faculty, and alumni. As these services have only been introduced in the past 12 months, few educational institutions have transitioned to using them so far. One of the first is Arizona State University. See <http://www.projectredstripe.com/media/EconomistArticle8450071.html> and <http://asuutoblog.net/2006/10/16/like-technology-from-an-advanced-alien-culture.../> for some

details of their transition to Google Apps for Education. Most aspects of these service offerings are still rapidly developing and changing, including the services offered, how the advertising is integrated, and how they will be integrated with other services, both from their vendors as well as third parties.

3.2. WHY CONSIDER PARTNERING WITH THESE VENDORS?

Partnering with a vendor such as Microsoft or Google to deliver collaboration tools via a software as a service model has the potential to offer many benefits to the UC Berkeley campus community, such as:

- Providing service enhancements, including greater disk storage, better spam handling, improved web-based user interfaces.
- Offering (currently somewhat limited, but rapidly improving) collaboration tools and cross-application integration built on vendors' platforms.
- Offering additional collaborative and messaging tools expected to be available from these platforms in the future.
- Taking advantage of vendors' fast pace of innovation.
- Facilitating the provision of "K-Gray" services to the extended campus community.
- Reducing costs to some extent, especially when considering the cost of matching vendor storage.
- Allowing the University to redirect its IT efforts towards core competencies.

3.3. WHAT DID WE LEARN FROM THE VENDORS WE TALKED WITH?

3.3.1 GOOGLE

Contact: Jeff Keltner

Google offers a number of tools as part of this service package. Details of the offering are at http://www.google.com/educators/p_apps.html

Further Details:

- Quota of 2GB, shared across all tools (although not currently enforced for tools other than email).
- Advertising can be turned off for current students, but not for faculty, staff, or alumni. Faculty and staff may have ads turned off if we pay \$50/person/year.
- Integration with LDAP, Single-Sign-On (i.e. CalNet), management tools, reporting APIs.
- 24x7 support for our IT staff.
- No direct end-user support.
- Look at Google's current offerings as well as Google Labs for ideas about what will be rolled into Google Apps in the future.
- POP and SMTP available now; Google is still trying to figure out how to best do IMAP.
- No PDA Synchronization for Calendar at this point, but there are third-party options.
- Calendaring does not offer many enterprise-class features (free/busy, group scheduling, resources) at this point. Those features are being developed.
- Google can afford to offer this service for free to students because it drives usage of other Google tools (especially search), and is therefore an investment to get people to use Google solutions. Additionally, Google believes that supporting higher education is a good thing to do.
- Limited or nonexistent current support for groups of users in applications, but Google is working on that functionality.
- No current tools for migrating data in/out en masse, but that's being worked on.
- No current webfiles-like tool; Jeff Keltner didn't seem to understand why we needed/wanted such a tool.
- Current offerings are not ADA or Section 508-compliant. Google Mail offers a simple HTML

mode, but it has not been evaluated for accessibility. Other Google service offerings are not being designed with accessibility in mind.

Privacy/Policy details:

- University of Pennsylvania paper on online privacy, referencing Gmail: <http://knowledge.wharton.upenn.edu/createpdf.cfm?articleid=1437>
- Google's stance is that the user's data is her or his own.
- Google doesn't respond to subpoenas unless it has to.
- Google will give 21 days notice to users to quash when can. (Patriot Act gag orders may prevent this.)
- Google will fight unreasonable subpoenas, but, as this is a rather untested area of law, is currently unwilling to put pertinent language into a contract.
- Google Privacy policy: <http://www.google.com/privacy.html>.
- Google will not financially compensate UCB for violations of policy or violations of contract, as UCB is receiving the service for free. This may mean that, under some circumstances, UCB's primary remedy may be to terminate its relationship with the vendor.

3.3.2 MICROSOFT

Microsoft offers a number of tools as part of this service package. Details of the offering are at <http://www.imagine-wl.com/education/>

Further details:

- Quota of 2GB for mail. Unclear for other tools.
- Advertising suppressed for students, not for faculty or staff. Microsoft (MS) is willing to talk about accepting payment to turn ads off for faculty and staff.
- Mail includes drop-down menu promoting other MS services; schools can add up to 6 items to this menu.
- Full support for Firefox (Mac and Windows) and IE, more limited support for Safari and Opera.
- Extensive support for mobile devices. Not just Windows Mobile, but any device with a color browser supported by a data plan from a wireless service provider.
- MS cautious about allowing offline access to email and other services because it gets no money when users work offline and therefore see no ads.
- Have developed a new standard to transfer mail to an offline client, called "Delta Sync," which is apparently more efficient than POP or IMAP. MS will be publishing Delta Sync as a standard and is hopeful that tools like Thunderbird would then support it.
- Currently there's only a Windows Delta Sync client, so MS will be opening up POP access as an alternative for Mac users by the end of 2007.
- There are no plans to offer IMAP, and POP will be discontinued once a Mac Delta Sync client exists.
- Currently there are no plans for a tool for bulk migrating email or other data to or from MS's offering.
- Microsoft is apparently working on a competitor to Google Docs and Spreadsheets - see <http://www.techcrunch.com/2007/03/08/confirmed-microsoft-building-google-appszoho-competitor/> for details. (NOTE: Not mentioned at meeting, discovered later.)
- APIs for various tools will be available, if not already. See <http://dev.live.com>
- Authentication via Windows Live ID or Campus-Single-Sign On through SOAP-based API.
- Authentication is SSL, but other communications (email transfer, etc.) are all cleartext.
- File storage/sharing tool not available yet. Expected 1H2007.
- Portal/collaboration tools not available yet. Expected 3Q2008.
- Current offerings are not ADA or Section 508-compliant. Windows Live Mail is known to work with screen readers, but other Windows Live service offerings are not being designed with accessibility in mind.
- No direct end-user support.

Privacy and Security Details:

- Microsoft will hand request to University unless prevented by Patriot Act (or similar) gag order. This is similar to what's mandated by FERPA.
- Intent is to notify the University and allow us to fight it, and only comply if we choose not to fight it.
- Electronic Commerce and Privacy Act applies to data stored on Microsoft's servers.
- Microsoft believes it's not clear if the law would assume that the data belongs to the individual user or the University.
- While we did not ask Microsoft about compensation for contractual violations, it will likely be similar to Google, who will not financially compensate UCB for violations of policy or violations of contract, as UCB is receiving the service for free. This may mean that, under some circumstances, UCB's primary remedy may be to terminate its relationship with the vendor.

4. WHAT ARE THE MAJOR OPPORTUNITIES PROVIDED AND CONCERNS RAISED BY THESE VENDOR OFFERINGS?

A series of four meetings, including one each with Google and Microsoft, allowed committee members to probe the details of these service offerings and led to a wide-ranging discussion of the relation of the campus's needs to these services. At the conclusion of these discussions, the majority of the committee felt that the following issues were of particular concern. Further details can be found in section 4.2.

1. The current vendor offerings for email, calendaring, and file sharing are less technically capable in certain important areas than the offerings currently in place on campus and are therefore not sufficiently compelling to induce us to consider switching from offering our own services at this point. See section 4.2.7 for examples.
2. Improvements to existing services may be feasible at acceptable costs; e.g.
 1. More disk space for CalMail
 2. Expanding the CalAgenda service
3. Both vendors' offerings raised concerns over privacy, concerns which a number of committee members described as "showstoppers" at the current time. Several other members felt that these privacy issues might be manageable, if addressed. See Section 4.2.1 for details.
4. The vendors' collaborative tools offerings beyond the email, calendaring, and file sharing applications are not yet sufficiently compelling to make it worth overlooking the limitations in the other services.
5. This is an extremely rapidly-developing area in the IT industry with tremendous potential to deliver compelling collaborative tools. We should continue to monitor it closely, with an eye to discovering when the services offered become more compelling and if our major concerns are resolved.
6. In any scenario, it is important to develop a better and deeper understanding of the user needs of the campus community before considering implementing any of these services, whether for email, calendaring, and file sharing or other collaborative tools.

4.1 MAJOR OPPORTUNITIES PROVIDED TO THE CAMPUS

Google's and Microsoft's collaboration tools are being rapidly enhanced, and new tools are continually being added to their suites through development or acquisition. For example, the tools listed on the Google Labs page are likely to be rolled into the Google Apps for Education offering as they mature.

Many of these tools have so far been offered free of charge to individuals and institutions even without a formal partnership. However, by basing campus email, calendaring, and web-based file storage, as well as new types of collaboration services, on the offerings of a single vendor such as Microsoft or Google, there is a prospect that those services might provide meaningful integration between these constituent tools and other synergistic benefits, such as common user interfaces and

account administration. In addition, as another potential side benefit of an outsourcing partnership, the campus might obtain greater influence over the future development of these vendors' collaboration tools, so they might better meet the needs of the campus community.

The fact that these tools are based on Web 2.0 technologies and will offer easy-to-use APIs to exchange data would allow us to integrate these offerings with other services and connect them to repositories of valuable data, both from other vendors as well as existing on-campus services. One representative example would be the potential to integrate calendars across multiple services, as well as to tie these calendars in with campus services such as course registration and administrative deadlines.

Paraphrasing David Greenbaum: "A prediction – My guess is that 2-3 years from now, Google, for example, will be extremely strong in 5-10 end user collaborative tools. Jotspot for team and project management is one, and there are other important tools that are fundamental to scholarship and sharing, such as wikis, web logs, and online library materials (via Google Books). Google seems committed to an open model that allows the free movement of data in and out of their services. We (higher education institutions) will not be able to compete, especially in terms of innovation and integration between these applications. Partnering with Microsoft or Google now will give us an opportunity to roll out services to campus in a controlled way, as opposed to being forced to support them in an unplanned way as people start using them on their own.

"Should we partner with a company like that and take advantage of it? It's clear that this is a complicated and sensitive question. I believe it's very important for the campus to have a robust, sophisticated strategy on collaboration. One of the major goals of Data Services over the next several months and years is to develop and implement that strategy. My guess is that we'd be better served in the long term to partner with Google or Microsoft to do that. If we could figure out some way to define and attempt to resolve the privacy, security, and campus system integration issues, that would be a valuable thing. Finally, there's a value to campus to partner with vendors to generate investment, gifting on their part."

4.2 MAJOR CONCERNS

4.2.1 PRIVACY

- The way subpoenas are handled is a critical issue and one that a number of committee members were concerned about. Because of recent laws (such as the Patriot Act), we might not even know about, much less have an opportunity to fight, a subpoena for the discovery of University data delivered to an external vendor.
- Potential contractual remedies or workarounds for subpoena and other privacy problems are still a somewhat gray legal area, which have not been fully tested in the courts.
- There are different levels of legal protection that we'd want to provide to different classes of users. We would want to offer extensive protection to current students, faculty, and staff (e.g. *in loco parentis* for students still exists in perception, if not in law), but probably not so much for alumni (i.e. alumni would be expected to respond to their own subpoenas as opposed to our legal department doing so).

4.2.2 LEGAL AND POLICY ISSUES

- As these services are offered at no monetary cost to UC Berkeley, it's unlikely that there would be any real provision in a vendor contract to make the University whole if the vendor violates the contract via actions such as:
 - Losing University data.
 - Violating law or policy in their handling of University data.
 - Causing harm to members of the University community through their handling of privacy incidents, as per the discussion in 4.2.1.

- Radically changing the terms of service, such as by imposing new charges for service or by removing or restricting some of its offerings.
- Terminating the service.
- Having any real contractual leverage with a service provider requires paying that vendor a fee. At current rates for each vendors' paid services, this would eliminate much of any potential cost savings.
- The vendors both stated that handling of UC or campus policy issues, as distinguished from legal issues, is generally left up to us. Conflicts between UC or campus policy and the vendors' own policies regarding privacy, acceptable use, and the like would need to be negotiated contractually. As noted elsewhere, it is not clear what remedies we might have if policy conflicts occur.
- There is some chance we could work out the privacy, legal and policy issues via our lawyers, but it only makes sense to try to do this if the service offering is highly compelling.
- When the possibility of a partnership arrangement was mentioned to the Chancellor (whose approval, as well as that of the Academic Senate, would be necessary), he had three questions that should be included in our considerations of any potential partnership:
 1. What would be the effect of outsourcing on UCB?
 2. What would the effect be of UCB outsourcing on other public schools?
 3. What would be the effect of UCB outsourcing on other UCs?

4.2.3 Cost

- While further financial analysis is necessary (see section 5.4), it seems that these offerings are unlikely to provide significant cost savings in the short term. They may offer the ability to do more (especially in the realm of providing new tools for use on campus) with the same amount of money, but that is still unclear.
- Some reasons that significant cost savings may not be realizable, at least for email:
 - The cost of partial outsourcing. If we were only to provide free, advertising-supported, outsourced email services to students, we would still need to run our full campus email infrastructure to provide services to faculty and staff. Although storage costs would be lessened, other costs would not.
 - The cost of removing advertisements from email service. For a variety of reasons, it is possible that some campus communities, such as faculty, staff, or alumni, may not accept advertising-supported email services. If that proves to be the case, and we were to outsource the provision of email to the members of these communities, there would be substantial fees to be paid to Google (\$50/user/year) or Microsoft (subject to negotiation) that may well exceed the core costs of providing these services in-house. (See section 5.4.1 for details regarding those costs.)
 - Integration and transition costs. There are significant one-time costs, in addition to more modest ongoing costs, in integrating an outside vendor's services with campus systems, such as the CalNet infrastructure, and in transitioning users to the new service.

4.2.4 ADVERTISING

- It is still unclear about the acceptability of displaying advertising in these services for faculty, staff, and alumni. This needs further investigation before any decision is made.
- Partnering with an external provider for these services would be a de-facto endorsement of that service by UC Berkeley.

4.2.5 INTEGRATION WITH CAMPUS SERVICES (E.G. AUTHENTICATION, AUTHORIZATION, OTHER CAMPUS SYSTEMS)

- While both vendors do have or promise APIs for data interchange, learning how to use these APIs effectively for authentication, authorization, and integration with other campus systems

would be a significant learning process.

- Both vendors offer a portal-like tool, but may not be what we want (or robust enough) for a campus portal. This portal tool may not integrate adequately with the campus systems that should be represented in such a tool.

4.2.6 ACCESSIBILITY

- The offerings from both vendors provide limited or non-existent ADA or Section 508 compliance for many features. The vendors' core email offerings have some accessibility workarounds, but their other services are being developed with relatively little regard for accessibility concerns. As with privacy concerns, this limitation is seen as a potential "showstopper" by a number of committee members.

4.2.7 TECHNICAL ISSUES

- Several of these vendors' services would be a step backwards in terms of level of service for many of our users, especially faculty and staff. Most notably, neither service offers IMAP access, only POP; and both vendors' calendaring offerings are significantly more limited than the current capabilities of CalAgenda (e.g. lack of easy PDA synchronization).
- Neither of the vendors currently offers the ability to audit/confirm the delivery of a message to a user's inbox, which is important for official University communications.
- Neither vendor yet offers methods to get data into and out of the service via bulk migration. This is of concern for several reasons - for example, if we decide to end a partnership.

4.2.8 END-USER SUPPORT

- Neither vendor offers direct end-user support, though both do provide second-tier support. We have not previously provided support for a system that we do not run - for example, we would no longer have direct access to the system administrators - and we therefore have little knowledge about how this would affect our level of service to the campus community.
- There are significant support costs associated with any transition to a new service or solution that's used on a campus-wide basis.

4.2.9 CURRENT VS. FUTURE SERVICES

- The Google and Microsoft offerings offer interesting possibilities on two fronts, first for improving current services and second for offering new services to campus (e.g. the products listed on the Google Labs page). However, the best solution for the first of these aims may not be the best solution for the second (and vice-versa). Resolving this potential conflict and ensuring interoperability and a good user experience across all tools offered to the campus community is an area that needs further discussion and strategy analysis.
- There is the potential for many new and interesting services from both of these vendors, but the lack of capabilities in the current offering overshadows their future potential or any benefits that might be gained from beginning a long-term partnership now (April 2007).

5. RECOMMENDATIONS

Given the advent of 'software as a service' and the growing strength of the Web as a platform for IT services, the investigation described in this report was a timely and informative process. The presentations and discussions elucidated both opportunities and concerns, and spurred a valuable discussion among campus stakeholders.

After a thorough examination of the capabilities of the current offerings from Google and Microsoft,

the general consensus of the committee is that the campus should not contract with either vendor for the provision of email, calendaring and/or web storage services at this time. Serious concerns stand in the way of the campus adopting such an approach. On balance, the potential for realizing cost savings and increased functionality from outsourcing these campus services to Google Apps for Education or Microsoft Live@EDU are not sufficiently compelling to overcome those concerns. Moreover, in a number of areas, it is evident that the campus would be left with services of reduced functionality. Similarly, anticipated cost savings might not be real.

In the near to medium term (12-18 months), the result of the committees findings is that the campus should continue to improve existing messaging services, in part to address the issues described in section 1.1.

In the longer term, the committee feels that it is important to continue to track the developments in this field, both with web-based hosting providers such as Google and Microsoft, and with commercial vendors, such as IBM and Oracle, of messaging and collaboration platforms that we might host on campus. As with any service offered by the campus, we need to continually evaluate if the services we offer are provided in the most cost-effective way and continue to meet the evolving needs of the campus community. Additionally, the capabilities envisioned for the collaborative tools Microsoft and Google (and others) are developing beyond the email, calendar, and file sharing space are potentially quite compelling, and may offer considerable value to the campus community.

It should be emphasized that partnership with a web-based "platform" provider such as Microsoft or Google, is just one possible approach that the campus may to meeting overall collaborative tools needs. Other approaches outlined in section 2 should be investigated thoroughly, in a manner parallel to the efforts documented in this report.

6. POSSIBLE NEXT STEP PROJECT: BEGIN CAMPUS COLLABORATIVE TOOLS STRATEGY DEVELOPMENT

This report represents the conclusion of the project to assess whether the campus should now partner with a "software as service" provider to deliver email, calendaring, and an initial set of other collaborative technologies.

As a next step after this project, the campus could begin a much broader and more systematic campus collaborative tools strategy development project. This project would look at all of the major alternative available to the campus (mentioned in section 2), not just the partnership with Google/Microsoft.

Below we list the projects that would make up this strategy development program. These projects could be carried out serially or simultaneously. For each of the following that we choose to do, we would need to identify the participants for those efforts. These activities apply both to the solutions we offer for email, calendaring, and file storage as well as to the larger collaborative tools space.

6.1 RESEARCH USER NEEDS

In order to better guide our explorations and implementations of any new tool offering, it is important to do ongoing user research and needs analysis to firmly establish:

- The needs of the users of our current systems.
- How well the current systems are meeting those needs.
- What collaborative tasks or activities are important to users but not supported by current solutions.

6.2 CONTINUE TO TRACK TECHNOLOGY AND PRODUCT DEVELOPMENTS

As the offerings from Google and Microsoft along with many of the other alternatives mentioned in

Section 2 show potential to be valuable in the future, we should continue to learn about the developments in this area, especially concerning their longer-term roadmaps.

6.3 FINANCIAL ANALYSIS

Campus IT providers should conduct a financial analysis of the full cost of the current email, calendar, file sharing services and other current campus collaborative tool offerings, as well as each of the major alternatives identified in section 2. While cost is just one factor in making any decision, we should be clear about what those costs actually are.

6.3.1 COSTS INCURRED BY CONTINUING TO RUN EXISTING SERVICES

We already have a fairly detailed analysis of current IST costs for email, calendaring, and file storage in Spring 2007:

- CalMail: \$853,000/yr (increasing quotas to 1.5 GB increases costs to \$1,020,000/yr)
- CalAgenda: \$373,000/yr (offering accounts to all members of the campus increases costs to \$533,000/yr)
- WebFiles: \$212,000/yr (increasing quotas to 500MB increases costs to \$240,000/yr)

Further analysis is needed of the costs incurred by other campus departments that currently provide their own solutions for email, calendaring, and/or file storage but that would choose to take advantage of a centralized next-generation system. Similarly, analysis is needed of the costs that might be incurred by campus departments that would choose to (re)implement departmental services in the event that the campus switched to a new messaging solution.

6.3.2 COSTS INCURRED BY IMPLEMENTING ALTERNATIVE SOLUTIONS

The cost of each of the options for email, calendaring, and file storage mentioned in section 2 is still unclear, and would need to be established before committing to major changes in the provision of campus messaging services. Any major change to a campus service would incur large one-time costs to support the transition, and all the alternatives would also require continuing our ongoing expenditures for end-user support. In addition, some of the alternatives would maintain or increase UC Berkeley's costs for licensing, maintenance, and hosting of these services.

In the case of the offerings examined during this project, these services are not free for Microsoft and Google to deliver, even though they are being offered at no charge. As we analyze any possible deal, it is critical to keep in mind the value of what we're giving the vendors, even if that value isn't initially quantifiable. For example, the ability to advertise directly to our faculty, staff, and alumni is worth a great deal, as is the ability to say "UC Berkeley uses our service."

6.4 RELATED ISSUES AND ACTIVITIES

There are several issues to be resolved and activities to be carried out in order to successfully implement any new or improved service. These issues affect more than just the collaborative tools realm, and therefore likely should involve a wider range of groups in their completion.

6.4.1 RESOLVING LEGAL/PRIVACY ISSUES AROUND OFF-CAMPUS STORAGE OF UNIVERSITY DATA

Establishing an external partnership - whether related to messaging services, collaborative tools, or to other realms of the University's business - is likely to be desirable at some point in the future. For this reason, we may want to start to examine ways to make it possible to safely store University-owned data within the facilities of an off-campus provider, from privacy, policy, and legal standpoints. This may involve both work with our lawyers as well as our elected representatives in Sacramento and Washington.

In beginning this research effort, we might explore how the privacy/subpoena issue is handled with the provider that stores our backup tapes off-site.

6.4.2 TESTING AND EXPERIMENTATION

Test implementations of products or services are often viewed as promises of service or even fully supported services. We must develop ways to test or experiment with new products and services without this implication.

6.4.3 INTEGRATION OF NEW SERVICES AND MAKING CAMPUS DATA USABLE

To be fully effective, users of collaborative tools need easy ways to access and use multiple data formats (e.g. video, audio, calendar, financial, research data sets). We must therefore research and implement ways to appropriately expose this data in the most useful manner. As web-based offerings, such as Google's and Microsoft's email and calendaring services, are already available to and being used by individual members of the campus community, we may wish to learn about working with the APIs of these products in order to more easily exchange data with them, regardless of whether any formal partnership agreement is in place.

APPENDIX 1: INTRODUCTORY LETTER SENT TO GOOGLE, YAHOO, AND MICROSOFT

Like many universities, particularly large research institutions, we are facing the challenge of how best to provide core collaboration tools such as email, calendaring, and web based file storage to our faculty, students and staff. As these tools start to blend, merge, and intersect with the next wave of collaborative tools, such as collaborative writing, social bookmarking, photo sharing, audio and video sharing, and mapping, we are starting to develop new longer term strategies for the architecture and provisioning of these services to the campus community. As part of this process, we are evaluating strategic partnerships as a way to improve our level of service to the University of California, Berkeley (UCB) community. We would therefore like to invite you to a meeting of key managers of UCB information technology to discuss ways in which we could work together to develop better solutions for all, or a significant portion, of our campus community. Below we lay out some of our current context related to email, calendaring, and file storage, and then note several possible opportunities related to the emerging set of collaborative tools for the academic community.

Current Context

Email

We currently run a free email service, used by 70,000 members of the campus community. In order to keep our costs under control we limit free storage to 100MB for each account. This service offers users the ability to retrieve email using a web interface, POP, or IMAP. We recently asked a campus-wide technology group which was more important as an email feature: more storage or a better web interface. It was interesting to see that the answer was split 50/50. This clearly illuminates the need to improve the service on both fronts. We think both of these needs may be better addressed through new partnership model with external providers.

Calendaring

Our central campus calendaring service is based on Oracle Calendar and is available to interested departments for a small fee. We have considered offering calendaring to the entire campus community at no charge, but are not sure that the web interface would meet the expectations of students in terms of usability and functionality. Email and calendaring are not integrated.

File Storage

We use Xythos software to provide web based file storage at no charge for any member of the UCB community, but with a 50MB storage limit.

Courseware and Team Collaboration

UC Berkeley is an active participant in the Sakai consortium, which we use as our primary courseware product. The Sakai software also offers basic team collaboration tools, which are also available to anyone on campus. However, the emphasis of this software is clearly in the courseware space, as is reflected by its usage—while there are 455 project sites in use right now with over 1500 members, there are over 1000 course sites with more than 40,000 students.

Other Tools

We don't currently offer instant messaging, blogs, or wikis as an enterprise wide service.

Concerns about partnering with an external provider

While it is quite clear from the current state of our systems that a partnership may offer significant opportunities to enhance the level of service offered to UCB, there are also significant concerns in several areas, below.

Privacy

The University of California community feels strongly that we should actively protect the privacy of every person that interacts with us. We make significant efforts to prevent the unauthorized disclosure of personal information, and have long-standing policies prohibiting any examination of electronic communication without the consent of publishers or consumers of information. However, while we vigorously protect the rights of everyone to private and unimpeded communication, we don't allow our computing and communication resources to be used to interfere with the rights of others who are part of the larger networked community, and cooperate with all reasonable requests from law enforcement agencies. We would like to discuss how you protect the privacy rights of persons using your service offerings, and how you handle subpoenas for information.

Security

Over the past several years, we have made significant efforts to increase the security of all of our IT services. For example, all of the communication to and from the services mentioned above is currently encrypted. We would like to discuss how the security and integrity of the university's data would be maintained in your service offerings.

Data Ownership, Costs, and Funding Models

As the systems we are discussing in this letter are mission-critical to the university, we would also like to discuss the issues surrounding who owns the information that may, depending on your service offerings, end up being housed in servers that are not under direct control of the University. We would like to discuss intellectual property and confidentiality issues as well as the ability to transition the data stored on servers not controlled by the university in an orderly manner if the partnership should ever be discontinued for any reason.

We are very interested in the initial zero cost for the collaboration tools that you are offering to universities. We realize that providing these services does ultimately cost real money and that this often comes from advertising revenues. We are uncertain as to how an advertising sponsored central service will be received by the UCB community. It would be interesting to know if you offer an advertisement-free version of your services for a fee. Related to this, we would also like to know if you have developed partnerships with other universities that allow for shared software development and/or servers to be housed locally on the university campus.

Future Directions and Opportunities

Alumni Relations/Philanthropy/Community Partnerships

Increasingly, UCB relies on private philanthropy and community partnerships to meet our teaching, research, and public service mission. Today nearly 70% of our annual funding comes from non-state sources. This makes our relationships with the community and alumni critical to our future success. We would be very interested in discussing ways in which a partnership might help us with maintaining these connections, and, by extension, our fund raising activities. As one example, we hope that a partnership might help us maintain a "K to Gray" (i.e. lifelong) relationship with our students by allowing them to easily move their accounts from the service offered through a

partnership to your commercial offerings after they leave the university.

Upcoming Services and Tools

We look at e-mail, calendaring, and file storage as core collaborative applications that we need to address now, but we also want to investigate and plan for the provision of a rich set of collaborative and social media applications for the longer term. Again, these include such "web 2.0" type applications as social bookmarking/bibliographic tools, photo and image sharing, news aggregators and feed readers, personal web pages/portals, mapping and GIS applications, and tools that facilitate the work of collaborative projects and research and learning communities across the campus and world.

We note several points of interest related to this next set of collaborative tools:

- We believe that they should enable reasonable integration with core collaborative applications such as e-mail, and be part of a growing services oriented architectural approach.
- We believe that they should increasingly allow us to connect to the campus's (and UC systems) rich set of digital library, museum, and courseware assets (as we have mentioned, Berkeley is an active participant in the open source Sakai initiative). That is, we are interested in a collaborative tool strategy for the long term in which tools enable access to and re-use/re-mix of digital objects and content from a diverse ecosystem of institutional, departmental, and personal collections.
- We believe that they may also offer interesting opportunities to develop workflows in scholarly communication, both for knowledge creation and journal publication.
- As a public university, with a strong tradition of public service, we are also interested in tools that will make it easier for the campus community to expose its content, appropriately, to the public and K-12 for their benefit. These set of possibilities, of course, raise additional questions about intellectual property and data management, which will need to be explored.
- Finally, we see in the future a growing intersection between collaborative tools and the developing national "cyberinfrastructure" being built for the next generation of digitally enabled scholarship.

Researching New Technologies and Tools

Related to these future facing opportunities, a partnership model that may be of substantial interest to both the campus and to your company is to establish a "laboratory" on campus for the practical investigation of how this next generation of collaborative tools can be rolled out enterprise wide at a research university. Such experimentation might include the structured work of undergraduates, graduate students, faculty, libraries, museums, educational technologists, alumni and advancement specialists, engineers, and others to build a national model for the use of collaborative tools for the advancement of research, teaching, public service, and the student experience. The experiments in this laboratory would then inform the provision of future services both to UC Berkeley, as well as other higher education institutions and their K-12, community, and corporate partners.

As you may know, UC Berkeley has a long history of being at the forefront of new computing technologies. See http://en.wikipedia.org/wiki/University_of_California,_Berkeley#Contributions_to_computer_science

for a partial list. We hope and anticipate that a laboratory such as this would add to this legacy of innovation, to our mutual benefit.

Next Steps

We would like to hold a first discussion with representatives of your company and our campus collaborative tools committee in January or February to start exploring, first, our current needs for core collaborative tools of e-mail/calendaring/file storage, and then to begin discussion about our longer-term strategy for collaborative tools for the future of the research university. We will be in contact with you in the coming week to schedule times for the next year. We would like to request now any initial information, case studies, and/or strategy documents we can share with our review committee to help prepare for these meetings.

APPENDIX 2: EXAMPLES OF COLLABORATIVE TOOLS OTHER THAN EMAIL, CALENDARING, AND FILE STORAGE

- Collaborative Authoring (e.g., Google Docs, 37signals Writeboard)
- Discussion forums
- Instant messaging
- Knowledge bases
- "Live" collaboration tools (e.g., electronic whiteboards, screen sharing tools such as TeamSpot)
- News Aggregators/Feed Readers
- Personal Portals (e.g., UPortal/NetVibes)
- Photo Sharing (e.g., Flickr)
- Podcasting (e.g., iTunesU)
- Social Bookmarking (e.g., Del.icio.us)
- Social Networking (e.g., FaceBook, MySpace)
- Surveys/Quizzes/Polls (e.g., SurveyMonkey, Zoomerang)
- Video Sharing (e.g., YouTube)
- Web/video conferencing (e.g., WebEx)
- Weblogging ("blogging") tools
- Wikis

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