Blackboard Advisory Committee: Status Report, fall 2006
JQ Johnson, 30 Nov 2006

Overview

The UO Blackboard course management system is managed by the Library Center for Educational Technologies, in collaboration with UO Information Services. It provides a central location for online course materials and a tool for implementing online components in UO courses. The UO licenses the Blackboard Learning System Enterprise edition from Blackboard, Inc.

The Blackboard system is a service of the Libraries’ Center for Educational Technologies. It is managed on a day to day basis by Tim Boshart, the CET Blackboard Coordinator. Overall project leader is JQ Johnson. Additional major support includes database management (Stephany Freeman, Information Services), faculty training (Nargas Oskui, CET), and a wide variety of other support organizations around campus. Physical system hardware is located in Knight Library (managed by Library Systems) and the Computing Center (managed by Information Services).

To ensure that Blackboard remains responsive to the needs of the faculty and the university community, the Blackboard Advisory Committee meets quarterly and provides policy guidance to the Libraries. Members of the committee for 2006-07 include:

- Deborah Bauer  Finance
- Pam Birrell  Psychology
- Herb Chereck  Registrar
- Kassia Dellabough  Arts & Administration
- John Fenn  English/Music
- Sandra Gladney  Continuation Center
- Michael Hennessy  Computer & Info Science
- Mark Horney  Educational Studies
- Mary Ann Hyatt  Law Library
- JQ Johnson  Library (chair)
- Katy Lenn  Library
- Richard Troxel  Exercise & Movement Science
- Kartz Ucci  Digital Arts
- Robert Voelker-Morris  Teaching Effectiveness Program
- Tim Boshart  Library (ex officio)
- Nargas Oskui  Library (ex officio)

Blackboard usage, 2006

The Blackboard system has experienced fairly consistent continued expansion. The system has grown from one used in about 200 courses per term in 2002 to 950 in spring 2005 to about 1300 courses per term today. We estimate that at least 2/3 of all UO student credit hours now have a Blackboard component.
As of 19 Oct 2006:

- 18,510 student users
  (85% of all students)
- 1317 active fall-term or
  fall-semester Banner
  (CRN) coursesites
- 1445 faculty, GTFs,
  and staff teaching using
  Blackboard
- Approximately 55,000
  fall coursesite
  enrollments
- Approximately
  2,000,000 web server
  hits/day, 12,000
  logins/day

Some events of note during the past year

Among significant Blackboard activities and events:

- Several significant Blackboard hardware upgrades, including establishment of a test and development server (winter 2006), increases in disk space on the database (March 2006) and application file server (June 2006), creation of a redundant application file server for improved availability
- Software upgrades to Blackboard versions 6.3 (August 2005), 7.0 (March 2006), and 7.1 (August 2006); 6.3 and 7.1 each introduced many new features, 7.0 was a major change internally, but included fewer externally visible changes
- Addition of numerous new Blackboard features, e.g. a video conferencing system (Amiga) developed by Yamada Language Center, RSS news feeds, and support for WebAssign (a hosted homework submission system used mostly by Chemistry and Math)
- Evaluation of Blackboard alternatives. We installed and tested a copy of Sakai, an open source alternative to Blackboard, and concluded that at this time it did not offer sufficient maturity to be a serious alternative for our campus use.
- Policy changes, including moving to UO-standard email addresses (September 2005), substantial changes in backup schedule (January 2006), and a negotiated increase in the number of licensed Blackboard users to cope with increased demand (April 2006). This latter change has allowed us to open Blackboard access to a larger number of UO instructional support staff.
- Creation of a Blackboard blog (July 2005) to provide status information to the user community, a frequently asked questions online system, and integration with the new Computing Center status monitoring system
- Establishment of a more robust user support system, with involvement by Computing Center (now Information Services), Teaching Effectiveness Program, Library Systems and ITCs, and
numerous other support units around campus. The focal point for faculty support continues to be CET Consulting.

- A significant number of Blackboard workshops for faculty. For example, during September 2006 we taught a total of 7 2-hour workshops (for about 90 faculty and GTFs) introducing the blackboard system.

In part due to the fact that we have been timely in installing new Blackboard upgrades, the UO is presently seen as a national leader in deployment of recent versions of Blackboard. For example, Tim Boshart, our Blackboard coordinator and system administrator, presented for us on our Blackboard experience in October at a Blackboard conference in Chicago, and is expecting to present at the regional WABUG conference in Auburn WA on Dec 1.

**Plans for the next 6 months**

We currently have several fairly definite upgrade commitments, with others in various stages of planning:

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter Break 2006</td>
<td>upgrade database to Oracle 10g</td>
</tr>
<tr>
<td>(all day Wed., 20 Dec 2006)</td>
<td>install latest Blackboard hotfix (minimal user-visible change)</td>
</tr>
<tr>
<td></td>
<td>install redundant servers for eventual load balancing</td>
</tr>
<tr>
<td></td>
<td>install several additional building blocks, including support for TurningPoint clickers, podcasting</td>
</tr>
<tr>
<td>Spring Break 2007</td>
<td>convert from Radius authentication to LDAP</td>
</tr>
<tr>
<td>(all day Wed., 28 Mar 2007)</td>
<td>possibly upgrade to Blackboard 7.2</td>
</tr>
<tr>
<td></td>
<td>possible additional building blocks</td>
</tr>
<tr>
<td></td>
<td>implement load balanced front end system</td>
</tr>
<tr>
<td>Summer 2007</td>
<td>possibly upgrade to Blackboard 7.2</td>
</tr>
<tr>
<td>(all day Sat., 18 Aug 2007)</td>
<td>tentative: database server hardware upgrade</td>
</tr>
</tbody>
</table>

We anticipate additional downtime as usual each Friday evening 10pm-midnight, and additional downtime Saturdays: Our most recently announced downtime schedule is:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time Period</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 6, 2007</td>
<td>before winter term</td>
<td>possible date for emergency upgrades only</td>
</tr>
<tr>
<td>Feb. 10, 2007</td>
<td>middle of winter term</td>
<td>tentatively scheduled; no major user-visible changes</td>
</tr>
<tr>
<td>Mar. 10, 2007</td>
<td>before last week of classes winter term</td>
<td>possible date for emergency downtime only</td>
</tr>
<tr>
<td>Mar. 28, 2007</td>
<td>during spring break</td>
<td>see above</td>
</tr>
<tr>
<td>Apr. 14, 2007</td>
<td>during spring term</td>
<td>tentatively scheduled; no major user-visible changes</td>
</tr>
<tr>
<td>May 12, 2007</td>
<td>middle of spring term</td>
<td>tentatively scheduled; no major user-visible changes</td>
</tr>
<tr>
<td>June 9, 2007</td>
<td>before final exams spring term</td>
<td>possible date for emergency downtime only</td>
</tr>
<tr>
<td>July 14, 2007</td>
<td>after week 3</td>
<td>tentatively scheduled; no major user-visible changes</td>
</tr>
<tr>
<td>Aug. 18, 2007</td>
<td>after 8 week term</td>
<td>see above</td>
</tr>
<tr>
<td>Sept. 8, 2007</td>
<td>Sept exp’ce, Law fall</td>
<td>tentative date for major upgrade</td>
</tr>
</tbody>
</table>

**Possible hardware and software upgrades and new features**

The following is a partial list of new features and upgrades we are investigating.

**Blackboard 7.2**

The next major release of the Blackboard, release 7 application pack 2, is currently in Beta test, and is expected to be released during December or January. This release makes major internal
architectural changes for increased stability and maintainability. There have been hints about other changes in user interface (notably in discussion board), but no definite information. There is widespread unhappiness with some of the user interface changes in Bb 7.1, and some indication that 7.2 will restore some of the previous interface. Note that although we are committed to upgrading to 7.2 we have no idea of when, and in particular if it is not released until January will probably not want to upgrade during spring break.

**Change default for VTBE?**

When we installed Blackboard 7.1, we decided to enable the new Visual TextBox editor, but leave it turned off by default. Individual users can enable it if they wish. We are considering turning it on by default.

**Turning Point**

We are presently evaluating a building block from Turning Technologies that provides blackboard integration for their classroom personal response system (clicker) software and hardware. The building block includes a registration system to associate particular clicker IDs with students (needed to allow use of clickers for grading), Blackboard roster downloading to the TurningPoint powerpoint software, and grade uploading to the Blackboard gradebook.

**Podcast building blocks**

We are evaluating two building blocks that provide support for podcasting, including Podcast LX, an open source building block developed by Learning Objects Inc and a building block developed at Baylor University. Of particular interest, both blocks generate an RSS feed file that informs users of new podcast episodes in a blackboard site without requiring login to blackboard. For Podcast LX the actual episode content can be uploaded to blackboard (and hence access controlled), or linked from a separate server. For the Baylor building block the actual content is transferred via FTP to an external server.

There are actually additional competing podcast-support building blocks currently being developed or distributed, with quite different features. We will need to make a definite commitment during December.

**Antiplagiarism software**

We have begun investigating demand and options for plagiarism detection software for use in Blackboard. We are currently looking at TurnItIn, SafeAssignment, and several less well known alternatives. Most of these packages use Blackboard as their primary interface for submitting student papers or testing them for plagiarism. Such software is moderately expensive; a campus license would likely cost $10,000 to $20,000 per year. It currently seems likely that we will conduct a pilot project evaluating antiplagiarism software during winter and spring terms.

**Blogs and wikis**

We continue to investigate ways to integrate collaborative and social computing web tools with Blackboard. Based on evaluation by Blackboard Advisory Committee members last year we decided not to pursue at that time the Learning Objects “Teams LX” suite, and instead are currently advising that instructors who wish to integrate blogs and wikis do so by linking to external services such as blogger.com. Note, however, that Blackboard now includes the capability of displaying headlines from an RSS feed, so if you have a social computing web site you can provide easy access to it from within Blackboard.

**Library database integration**

Blackboard currently passes authentication information to the e-reserve system, so students don’t have to log in twice if a course uses both services. We anticipate implementing similar
functionality for the Libraries’ image reserve and audio reserve systems. The Libraries are also exploring options for using Blackboard as the access control tool for streaming media hosted on the UO’s streaming server (Tinder), or on other hosted systems.

We are also experimenting with a building block that provides integration with Google Scholar. A course builder can use it to create canned Google Scholar searches or to upload items corresponding to specific Google Scholar entries. Such entries include links to the full text of the item if it is available, links to UO FindText to view full text from a licensed database, etc.

**LDAP authentication**

The Computing Center has been working for several years on a new middleware system providing authentication and authorization service for campus. The system uses the “LDAP” protocol to manage a directory of all UO individuals. Based on current schedules, we expect to make the Blackboard system the first major UO system to use the LDAP database for authentication, replacing the current Blackboard code that performs authentication using the radius protocol by querying the database of uoregon.edu computer accounts. Moving to LDAP will allow us to retire old and unsupported radius authentication code in the Blackboard system, and will eventually allow us greater flexibility in who gets Blackboard access. In the short run we do not expect this change to have any user-visible impact, but in the long run it implies that authentication would not necessarily require a computing center email account.

**Load balancing front ends**

During summer 2006 we purchased two additional servers to use as load balancing front end systems. The plan is to have user requests to the blackboard system go to these front ends, which would allocate them to application servers based on load. This system replaces the current round robin DNS system in which users randomly connect to one of several application servers, and is designed to make management of the application servers easier. We need to actually install the servers in the racks in the library machine room in preparation for installing and testing the load balancing software.

**Database server hardware**

The database server component of the blackboard system consists of a quad processor linux server housed in the Computing Center. The server was acquired in spring 2003, and so is nearing the end of both its hardware warrantee and its actual useful life. It is also the only non-redundant piece of the Blackboard system, though the highest failure-rate individual components of the server such as disk drives are redundant (using RAID technology). Our overall assessment is that the database server itself is the component that is presently at highest risk of a failure that that could create significant downtime. We are presently investigating options for replacing the existing server with current generation hardware in a redundant, or at a minimum a low MTTR, configuration. We expect this upgrade to be quite expensive (possibly more than $100,000), but if funding is available we will be pursuing it for summer 2007.

It should be noted that the Blackboard application servers were also acquired in 2003, and so will similarly need to be upgraded within about 2 years. We recently upgraded the file servers (to 1.1 TB), and so probably have 2 to 3 years of useful life for those systems as long as our assumptions about total disk requirements continue to hold; a major increase in the amount of media (especially student-authored video) stored on the blackboard system would require earlier upgrades of the file servers as well.
**Major issues**

The key question, on which all else depends, is how to ensure that Blackboard continues to support the educational objectives of its faculty users and contributes to student learning.

More specifically, though, in addition to issues implicit in the upgrade plans mentioned above, some of the major issues for Blackboard continue to include:

- Planning and budgeting for future server hardware upgrades.
- Continuing to offer a robust production service that meets expressed faculty needs, is easy to use, and experiences continued growth.
- Stimulating more advanced use of the tools Blackboard offers by a range of faculty, most of whom use blackboard primarily to post syllabus and lecture notes, for grading, and perhaps to link to readings or for online discussion boards.
- Refining access control policies: Who should have a blackboard account? There is a tension between the desires of faculty to allow greater access to the blackboard system (for example, by guest lecturers) and university policies that limit access to comply with legal requirements such as FERPA or with license agreements such as those governing use of many library resources. Examples of recent issues include students participating in the RARE (Resource Assistance for Rural Environments) program in PPPM, students and instructional staff in AHA International programs, instructors not currently on payroll, sign language interpreters hired by disability services on PSCs, students enrolled in Educational Leadership distance ed classes in Canada, etc.
- Integration with other library services, especially connections between Blackboard and other library licensed resources, involvement in Blackboard by other members of the library such as subject specialists, and integration of Blackboard into Media Services and CET media/courseware production activities.
- Faculty training. How can we improve faculty training given limited resources? Particular current issues include training in advanced or limited-demand features such as webassign. We would like to expand the availability of tutorials and online documentation, but it is not clear how much such online training is actually used by faculty.
- Support for student users. Support for students who need assistance with Blackboard is currently very limited, particularly if the student is off campus. What can we do to improve it? Of particular interest is how the expected campus-wide help desk/trouble ticketing system will work for Blackboard support.
- System security. The Blackboard system includes a number of third party additions implemented as “building blocks”. We need a more formal policy for ensuring that such third party additions are reliable and do not expose us to potentially serious security breaches.
- Student privacy and data security. Are there possible improvements to our current policies? For example, unlike some other Blackboard sites we store in the Blackboard system personal information for students with directory restriction; are there better ways to handle this?
- Copyright and intellectual property. Many faculty post copyrighted materials to their Blackboard sites, arguing fair use or TEACH Act (17 USC 110) exemptions. Do we need more consistent policies?
- Course archival and long-term storage.
- Desktop tools. An instructor cannot use Blackboard in a vacuum, but rather relies on a suite of tools that at a minimum includes her computer (typically either a Mac or PC), web browser, word processing, and media production tools. We license and/or distribute a small number of software packages specifically in support of Blackboard, including Respondus, PDFCreator, and a standardized set of browser plugins. Are there other whose utility is so great for Blackboard that they need to be supported as part of the Blackboard system?