Blackboard Advisory Committee: Status Report, winter 2011
JQ Johnson, 14 Feb 2011 (for meeting scheduled 22 Feb 2011)

General

We’re welcoming 3 new members to our 2010-11 committee:

Deborah Healey <dhealey@uoregon.edu> AEI
Michael Price <mprice@uoregon.edu> Mathematics
Jeneé Wilde <jenee@uoregon.edu> English (GTF)

At our last meeting we identified several issues and action items for this term, among them:

• We agreed to add 2 or 3 more faculty members to the committee starting winter term. DONE
• We discussed timing for workshops, e.g. for Bb 9.1 upgrade info. We agreed that more variety in
  time of day (and particularly morning sessions) would be desirable, as would more variety in
  location (particularly workshops held in the sciences, e.g. in Science Library). We also need to
  accommodate Portland attendees by videoconferencing. PARTIALLY DONE
• We identified several next steps to respond to concerns raised in the faculty survey this fall.
  PARTIALLY DONE – SEE BELOW

Reminder: We archive these quarterly status reports, and other information about the BAC, at
http://libweb.uoregon.edu/scis/blackboard/advisory.html.

System status update

The period since our last meeting has seen quite a large number of significant events, including a major
software upgrade, continued increase in usage of the system during winter term, an unusually large
amount of scheduled and unscheduled downtime, and quite a bit of behind-the-scenes change in the
blackboard system.

Winter term usage

As noted in the fall report, blackboard usage during fall increased by about 9% over the previous fall.
Data for winter term 2011 (as of 3 Feb.) shows similar usage trends:

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<tr>
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<th>Winter 2010</th>
<th>Winter 2011</th>
<th>growth</th>
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<tbody>
<tr>
<td>Active CRN coursesites</td>
<td>1857</td>
<td>2044</td>
<td>10%</td>
</tr>
<tr>
<td>Users in at least one coursesite</td>
<td>20760</td>
<td>21755</td>
<td>5%</td>
</tr>
<tr>
<td>Student enrollments in active coursesites</td>
<td>71947</td>
<td>78612</td>
<td>9%</td>
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We were somewhat taken aback at the end of last fall when we looked at total numbers of logged in
users. We saw several times when there were 8,000 or more active users. During January we had a
total of 805,027 logins, or 26,000 per day, typically representing more than 15,000 different users each
day. Our web server performance data (see https://blackboard.uoregon.edu/local/awstats/awstats.pl,
viewable on-campus only) showed 145 million web server hits for that month. As usual, this makes
blackboard one of the most heavily used computing resources at the UO.

We continue to pay close attention to UO browser usage since browser compatibility issues are a major
support topic. For January 2011 the breakdown of usage per awstats showed a significant increase in
Safari and Chrome usage (Safari was discouraged for blackboard use during fall term, and Chrome is
still deprecated), and a dramatic decrease in MS Internet Explorer usage (a small portion of which is due to our currently discouraging use of MS IE):

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<tbody>
<tr>
<td>Firefox</td>
<td>43.3%</td>
<td>46.2%</td>
<td>39%</td>
</tr>
<tr>
<td>Safari</td>
<td>34.7%</td>
<td>29.6%</td>
<td>35%</td>
</tr>
<tr>
<td>MS IE</td>
<td>11.2%</td>
<td>16.9%</td>
<td>22%</td>
</tr>
<tr>
<td>Chrome</td>
<td>9.7%</td>
<td>6.2%</td>
<td>3%</td>
</tr>
</tbody>
</table>

So far in February the trends have continued, with MS IE usage now actually lower than Chrome, and Mac usage at 56% compared with Windows at 42%.

As expected, the number of trouble tickets filed continues to be very high. We had a total of 413 tickets in the period 1 Jan - 11 Feb, an average of 69 per week. The number of tickets was particularly high during the first 2 weeks of the term, dominated by student login (new account/expired password/use of wrong UO credentials) problems.

**Software upgrades**

During winter break (Dec 22) Tim upgraded the system from Blackboard Learn 9.0 to 9.1 SP3. This was a major upgrade, though it mostly avoided major user interface changes. The upgrade went smoothly, and in fact took much less than the budgeted 2 days of downtime. Also during winter break, Information Services upgraded the application server operating systems to Red Hat EL 5.

The 9.1 upgrade fixed our most significant bug that had plagued us fall term, lack of Safari support. In addition, it provided a moderately large number of new features. We offered several workshops for instructors during the first week of the term, and produced several handouts highlighting changes. See [http://libweb.uoregon.edu/scis/blackboard/help/bb9_1.html](http://libweb.uoregon.edu/scis/blackboard/help/bb9_1.html). As promised, the workshops were teleconferenced to Portland, though we have not yet offered any in Science Library. Faculty satisfaction with the new version seems to be unusually high. We received several unsolicited messages like the following:

> JQ,
> I just wanted to let you know that I have appreciated the recent changes to Blackboard. The efficiencies of deleting and uploading files, creating and managing tests, and managing the grade center are excellent. These changes have saved an incredible amount of time.
> Thank you!
> Doug

The new version did, however, imply three new and significant bugs (plus a number of smaller ones):

1. File attachments copied from old coursesites using individual-item copy were not accessible to students after the copy. For most of winter term, we were recommending that faculty not use individual-item copying and instead use the Course Copy command. This problem has been fixed for new copies as of our 12 Feb upgrade, and so both types of copying now work in most cases.
2. Students using Internet Explorer can’t access MS Office documents uploaded to blackboard; instead they get an additional username/password prompt. We understand the causes of the problem, but don’t yet have a solution. This problem is serious enough that we are recommending that users avoid Internet Explorer. Luckily, IE usage on campus is down to about 10% (much lower than Firefox or Safari). We hope that it will be resolved in Bb 9.1 SP5.
3. 9.1 introduced a very nice new feature, “mashups,” including an easy way to include youtube videos in a Blackboard site. However, Google immediately changed their code and broke the feature in Blackboard. Fixed in our Feb 12 upgrade.

Due to the urgency of fixing bug #1 before most instructors start assembling spring coursesites, we installed a further upgrade, Bb 9.1 SP4, on 12 Feb.

A general question for the committee is whether the committee has recommendations for how we should allocate support time among multiple browsers. Should we simply refuse to provide support for non-Bb-certified browsers? Conversely, should we be spending more time attempting to debug problems such as the Internet Explorer bug that has been plaguing us this term?

System downtime
We have had an unusual number of incidents of unscheduled downtime this term:

<table>
<thead>
<tr>
<th>Date / time</th>
<th>Event</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>Jan 11, 2011 6:00pm-8:30pm</td>
<td>Most users unable to log in to bb, plus many additional problems. Most services restored by 7:00pm.</td>
<td>A network switch that one of our bb servers connects to experienced a failure. IS moved blackboard services to a different server.</td>
</tr>
<tr>
<td>Jan 17, 2011 2:00pm-2:45pm</td>
<td>Many users experienced a wide range of problems; system essentially unusable. Both app servers restarted.</td>
<td>When the servers were upgraded to Red Hat EL 5 the ulimit was accidentally set down to 1024 open files per process.</td>
</tr>
<tr>
<td>Jan 18, 2011 12:00pm-12:10pm</td>
<td>bb1 hit open file limit and restarted, causing cascade failure restarting both servers.</td>
<td>Recurrence of previous problem. The limit was upped to 8102.</td>
</tr>
<tr>
<td>Jan 24, 2011 9:50pm-10:00pm</td>
<td>All blackboard app servers stopped responding at the same time and were re-started.</td>
<td>Unable to reach database servers, although there was no problem with DB at the time. IS is investigating.</td>
</tr>
<tr>
<td>Feb 3, 2011 9:50pm-10:00pm</td>
<td>All blackboard app servers stopped responding at the same time and were re-started.</td>
<td>Unable to reach database servers, although there was no problem with DB at the time.</td>
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</tbody>
</table>

In addition to unscheduled down time, we were forced to schedule an unusual amount of “scheduled” down time on short notice. Due to the urgency of the “copy items” bug, we decided to take downtime on our previously scheduled 12 Feb maintenance weekend to install the new Blackboard Learn service pack that fixes the problem, rather than waiting till spring break. IS then scheduled an additional full day of downtime for machine room reorganization on 19 Feb, unfortunately resulting in two weeks of Saturday downtime in a row. Although we normally insist on giving the community months of advance warning for any scheduled downtime, the 19 Feb event was not firmly scheduled until 1 Feb. Due to the short notice, we took the unusual step of sending email to all faculty teaching with blackboard this term, alerting them to the additional downtime planned.

Hardware changes
Several of our hardware changes have been driven by changes in Information Services, notably major remodeling in the Computing Center computer room. Changes have included moving servers within the computer room, moving the SAN where blackboard files are stored, and changing network configuration.

Partially as a way to increase our resiliency to hardware problems in the Computing Center, and partially as a response to the ever-increasing load, we have added two new application servers.
As previously announced, the blackboard application servers now reside behind replicated load balancing front ends, one in the Computing Center and one in Oregon Hall. If an application server fails, traffic is automatically rerouted to another server. We have added 2 servers (bb3 and bb4), giving a fully redundant configuration of 5 application servers, two (bb1 and bb3) in the Computing Center, two (bb2 and bb4) in Oregon Hall, and an additional backup and batch processing application server (bbtask) in Oregon Hall. Any two of the servers would be adequate to handle our expected load temporarily, so from an application server viewpoint we can now survive the temporary loss of either building or of any 2 servers. We still need to reconfigure database servers; currently we have 2 replicated database servers in the Computing Center (configured to allow quick but manual failover), plus a cold spare for disaster recovery in Oregon Hall; this allows for immediate failover if one database server falters, but not for loss of all hardware in the Computing Center (as will occur, for instance, on 19 Feb).

This production configuration is supplemented with a test server (bbtest) and corresponding test database server, plus a small development server.

Our replication goal is to provide automatic failover from any single-system failure during regular operation and quick recovery from multi-system failures. In some cases it also allows minimization of downtime for software and hardware upgrades, since one server can be taken down and upgraded without disrupting the overall system. However, most major software upgrades still require that the entire system be taken down for maintenance.

**Plans for additional hardware and software upgrades**

We have begun planning for further upgrades. During spring break (Mar 23-24) we expect to upgrade the database servers from Oracle 10G to Oracle 11Gr2 Enterprise Edition, the current version of Oracle certified for use with the Blackboard Learn software. This will improve database performance somewhat and will make it much easier to fail over to the database server in Oregon Hall if needed (reducing failover time in the event that the Computing Center is totally unavailable from several hours to perhaps 15 minutes).

If Bb 9.1 SP5 has been released in time to allow adequate testing, we will install it at the beginning of summer, probably Saturday, 18 June. This date is earlier than the previously discussed 23 July date. Switching away from the middle of the 8-week summer term seemed to be the consensus recommendation at our last meeting.

Sometime during the summer we hope to be able to upgrade the database servers to Oracle RAC. This will result in a fully redundant and geographically distributed system where a failure in any single building on campus will not take down the blackboard system, and will provide adequate capacity for continued growth in usage. However, this change will apparently require hardware upgrades which could delay the process and could involve a full day of downtime. We will discuss RAC upgrade more fully at our spring meeting.

Although there might be an additional service pack by end of summer, we do not expect another major version upgrade until at least winter break.

**Additional notes**

As long-time committee members may recall, we made a major architectural and management change a year ago, moving all blackboard hardware to Information Services and shifting responsibility for hardware and operating system maintenance from Library to IS. This change has proven quite successful, for example allowing for the capacity and reliability improvements described above. It has
also successfully resulted in overall closer technical collaboration between Library and IS. On the downside, it appears that the number of incidents of unscheduled downtime has gone up somewhat, though we think that the new fully redundant configurations will reduce that. Tim also reports that his job has changed somewhat, and that he now spends more time on coordination and less on answering user trouble tickets. C’est la vie.

It is interesting to track our vendor, Blackboard Inc. One good source of information is the company’s annual earnings call, which occurred this year on 3 Feb. See [http://www.prnewswire.com/news-releases/blackboard-inc-reports-fourth-quarter-and-full-year-2010-results-115209904.html](http://www.prnewswire.com/news-releases/blackboard-inc-reports-fourth-quarter-and-full-year-2010-results-115209904.html). Blackboard reported a growth year, with moderate (but not exhorbitant) profit margins and total annual revenue growth of 18%. Total annual revenue for the company was $118 million, making them a reasonably large enterprise. It was interesting to see that their customer base is also expanding rapidly. Comparing their previous year’s report:

- Blackboard ended 2009 with 5,756 total clients and 7,693 enterprise licenses.
- Blackboard ended 2010 with 9,350 total clients and 12,458 enterprise licenses.

They also reported that they had had a 9% non-renewal rate, so it appears that they lost about 500 customers and gained about 4000.

Interestingly, the number of sites running older-generation Blackboard Learn quite large. A post from Jan Day at Blackboard to the blkbrd-l listserv this month reports about 850 institutions are running 9.1 and 350 running 9.0, so presumably the rest are running older versions of Blackboard, WebCT, or Angel. One has to feel sympathy for the Blackboard support people who are dealing with so many customers running very old versions. Meanwhile, the rapid worldwide adoption of 9.1 seems further evidence that many sites shared our negative reaction to Blackboard Learn 9.0.

**Responses to the faculty survey**

At our last meeting we identified several next steps to respond to the fall faculty survey:

- conduct a survey of student attitudes this spring.
- try to avoid gratuitous change to the user interface, since people can get used to suboptimal interfaces.
- improve documentation, with a focus on making it easier to find information within the documentation (via better search tools?)
- advertise existing support services, ranging from the video training materials CMET Consulting has developed to the ability to call 6-1942 with a question
- brainstorm new ways to make it easier for instructors to set their coursesites to available at the beginning of the term.
- look closely at the responses to the faculty survey, and attempt to identify a few other frequently-expressed pain points that we could address.
- work with Blackboard Inc. to make them more aware of our needs.
- have continued discussion within the committee.

We can report progress on several fronts.

**Student survey**

A subcommittee of our BAC, including Nargas Oskui, Michael Price, Anthony Rimmel, Elizabeth Shepard, and JQ Johnson, assisted by Adam Marcus, have started work on the student survey. We have scheduled a focus group discussion with the library’s Student Advisory Group for 16 Feb, and hope to have a draft set of questions available by the end of February. As part of that process, the subgroup will take another look at the results of the faculty survey.
**Documentation and advertising**

I have been working with the library’s Director of Library Communications to advertise existing Blackboard support services, especially CMET Consulting and (for students) the Knight Library Computer Help Desk. One outreach approach has been to send 2 email messages to all faculty teaching with Blackboard; this spam is not an approach we like to use very often, but we may continue to do so perhaps once a quarter.

We have made a number of changes to our local documentation at [http://libweb.uoregon.edu/scis/blackboard/help](http://libweb.uoregon.edu/scis/blackboard/help), including calling greater attention in the help files to Blackboard-provided documentation such as the On Demand Learning Center ([http://ondemand.blackboard.com](http://ondemand.blackboard.com)). We have been revamping our FAQ to update for 9.1 and to add move video and screenshots.

CMET Consulting staff have also developed a number of very nice videos, most of which are on youtube. See for example [http://libweb.uoregon.edu/scis/blackboard/faq/students/s13.html](http://libweb.uoregon.edu/scis/blackboard/faq/students/s13.html). A sample of a very recent video, not yet publicly released, is “Intro to Blackboard,” temporarily at [http://dl.dropbox.com/u/18288804/bbintro_v2_hq.mp4](http://dl.dropbox.com/u/18288804/bbintro_v2_hq.mp4).

No progress on improving documentation search tools, but I observe that google search (restricted to UO) and the search inside the Blackboard Learn manual (available via Control Panel) aren’t all that bad.

**Communications with Blackboard Inc.**

We’re making quite a bit of progress in this area.

Tim is now on the “Blackboard Suggestion Squad,” a selective group of site representatives that is looking at and helping prioritize Bb customer enhancement requests. This will not only give him more opportunity to influence Blackboard maintenance fixes, but will give us more of a sense for what the larger community of Blackboard users identifies as important. I’m also pleased to report that one of his enhancement suggestions was incorporated into the Bb 9.1 SP4 we installed on 12 Feb.

We have scheduled a visit by Jim Hermens, Blackboard’s Senior VP for Product Management and Strategy. Hermens is scheduled to meet with our committee on 1 March at 2pm. This is a golden opportunity for the committee to get perspective on Blackboard’s strategic directions and to provide input on issues UO faculty experience using the system. We also anticipate that Hermens or another Blackboard VP will be meeting with a group of UO deans and VPs later this spring.

This year we have two UO people (Tim and Nargas Oskui) planning to attend BbWorld in July. That’s another good forum for communicating with Blackboard.

**Setting coursesite availability**

We made some progress since our last meeting on helping faculty make their coursesites available. I sent email to all blackboard-using faculty in December that included the instructions. UO blackboard coursesites have for many years included the instructions in an item in Course Information, and for spring term that item will be highlighted so it will be more obvious to instructors. Following Anne Van den Nouweland’s suggestion, we will try posting an announcement in each new coursesite for the coming term. The announcement will be present from the date coursesites are created (18 Feb) for one month. That implies that the announcement will disappear slightly before the start of the term, and hence will not confuse most students. This approach will not work for fall term, though, since we create fall coursesites in the spring and having an announcement during May won’t help fall term instructors.
We are also exploring a more radical approach to coursesite availability that needs discussion within the Blackboard Advisory Committee. Is it time for us to automatically make all coursesites available at the beginning of each term? Presently we create coursesites for each CRN, a total of 4694 sites in winter 2011, starting them out as unavailable. For winter 2011 not quite half of them, 2094, were made available by the instructor. Weighted by number of student enrollments, though, the majority of courses are made available each term (about 78612 out of 100856, or 78%). Making all sites available would have a number of benefits besides eliminating the need for faculty to do it. For example, many students report being confused by the fact that not all of their courses show up in blackboard. This would also potentially allow us in future to use blackboard to hold institution-provided information such as standardized course syllabi or links to end of term course evaluations. On the other hand, switching to such a scheme would create complexities, for instance with “merged” coursesites where a single coursesite is used to support multiple CRNs (4xx/5xx courses, and some introductory courses, e.g. in foreign languages, where multiple CRNs all share the same syllabus and course materials). We also worry that this might constitute one of those “gratuitous” changes to user interface that we want to avoid. If the BAC advises that we move ahead with this idea for fall 2011, it would be very desirable to make the decision before we create fall term coursesites (late April).

**Continued discussion**

In a meeting of the deans last month, Deb Carver discussed the idea of doing a market analysis to help the campus understand where Blackboard fits into higher education, what current and potential alternatives/extensions to Blackboard Learn exist, and what the future of our blackboard service should be at the UO. This is a very large question, and one that potentially requires a huge amount of research, but Carver has asked that it be one of the foci for BAC discussions over the next 6 months.

If the committee takes the lead in organizing such an analysis, how should it be conducted and what should its scope be?

**Current Issues**

To summarize, there are at least 4 items for discussion at the winter advisory committee meeting:

1. Plans for student survey
2. How to make most effective use of the meeting with Jim Hermens, 1 March
3. Whether to make all coursesites default to “available” starting fall 2011
4. Organizing a market analysis of course management systems