Can Sakai be implemented at a small liberal arts school?

Mike Osterman
Developer, Emerging Technology

Keiko Pitter, CTO
Copyright

"Copyright Keiko Pitter and Michael Osterman, 2006. This work is the intellectual property of the author. Permission is granted for this material to be shared for non-commercial, educational purposes, provided that this copyright statement appears on the reproduced materials and notice is given that the copying is by permission of the author. To disseminate otherwise or to republish requires written permission from the author."
Agenda

• Background
  – Keiko Pitter

• Implementation
  – Mike Osterman
Background
Why a Course Management System?

• Expectation for on-line presence
  – courses
  – instructor information

• Lack of time
  – to learn to create Web pages
  – to create material in web format
Blackboard
Level 1
Usage – Spring 2004

- 67 “instructors” on Blackboard
- 150+ courses have been created
- 84 active courses
A Course Management System at Whitman

is a central repository for course-related information. Many of the distance-learning features (whiteboard, virtual classroom, discussion boards) went unused.
Used mostly to post:

- Faculty information
  office hours, phone, etc.
- Course documents/files
  syllabus, handouts, lecture notes, PDF files, audio/video files, etc.
- Assignments
- Announcements
- External links
Other features being used:

- Group emailing capability
- Limited usage of discussion forum
- Very limited usage of grade book and on-line assessment features (e.g. quizzes)
Faculty Gripes

• Problems with “digital drop box”
  – Size limitation to uploading of files

• Changing content requires many steps
  – need to save Word document as HTML, then upload

• Limitation with editor, e.g. equations
IT Gripes

- Username/password is independent of all other usernames/passwords used on campus
- Manual creation/deletion of all user accounts and courses--cannot interface with AIS (Datatel)
- Closed architecture
  - Source is accessible, but licensing prohibits “tampering”
- New features and enhancement
  - Available only in “Enterprise Version”
Recommendation:
Hinz/LePendu Report, May 2004...

“...there is insufficient incentive for change at the moment. With both cost and a single-source provider being significant roadblocks towards upgrading to a more robust system, it seems logical to investigate a more focused, affordable or open-source alternative.”
Options

- Alternate products, e.g. WebCT
- Moodle – Public open-source
- Segue – Middlebury College
- Dot Learn ->.Lrn
  - MIT, Sloan School of Management, St. Mary’s College, University of Massachusetts, Donovan Institute
- Sakai – Multi-institution project
“The University of Michigan, Indiana University, MIT, Stanford, the uPortal Consortium, and the Open Knowledge Initiative (OKI) are joining forces to integrate and synchronize their considerable educational software into a pre-integrated collection of open source tools.”

“That Sakai Project Receives US$2.4 Million Grant” – December 2003
Why Sakai?

- Provides all features required by Whitman faculty
- Project is sustainable
  - Community Source Project
- Sakai timeline is compatible with that of Whitman
- Provides access to expertise and support as needed
- Utilizes familiar hardware platform
- Cost we can live with
Sakai Timeline

Jan 04 | May 04 | Jul 04 | May 05 | Dec 05
Aug 04 Release 1.0
Dec 04 Release 1.5
May 05 Release 2.0
Activity: Maintenance & Transition from a Project to a Community

Whitman Timeline

May 04 | Nov 04 | May 05 | Dec 05 | Apr 06 | Aug 06
Analysis | Joined SEPP | CLEO 1.0 (based on Sakai 1.5) | Pilot Testing | CLEO 1.5 | DECISION | LIVE
Whitman’s responsibilities as a SEPP member:

• $5,000/yr. for three years
• Attend 2 meetings per year
• Provide feedback & contribute to discussion
Implementation

Sakai
Technical preparation

Oct 2004  Re-ran Blackboard usage survey
          Identified most-used features

Nov 2004  Built test instance of Sakai
          Studied architecture docs
Sakai Architecture

- **Client** - user’s web browser
- **Aggregator** – collects presentation output and displays in the portal container
- **Presentation** – provides UI components that are called from the Tools layer
- **Tools** – access services layer APIs and (sometimes) presents output to the presentation layer
- **Services** – interface to the core of Sakai – AuthN, AuthZ, groups, and storage
- **System** – hardware, operating system and server software, including database
Technical preparation

- Nov 2004  Made recommendation
- Joined SEPP
- Dec 2004  Attended SEPP technical meeting
  - New Orleans
Knowledge requirements?

Java  JSP  Java Beans

Model-View-Controller  Subversion

Maven  JSF  Eclipse

MySQL  Apache Tomcat  Hibernate  Spring  Sakai
Hardware Specifications

- Small Production = <200 users
  - Dell PowerEdge 2850 - $4,300
  - Dual 2.8GHz Xeon
  - 4GB Memory
  - 73GB Mirrored Storage
- Red Hat Enterprise Linux 3 AS - $50/yr
Pilot prep - Spring 2005

Jan 2005  Acquired server hardware ($4K)
Feb 2005  Installed Sakai 1.5
Mar 2005  Presentation to Blackboard users
          - Gained consensus
          - Recruited volunteers
          - Good distribution
Pilot Prep - Summer 2005

- CMS administrator/Trainer
  - Documentation
  - Pilot faculty training
- Attended SEPP conference
- Upgraded to Sakai 2.0
- Integrated with existing Web Authentication system
- Solicited incoming faculty
Pilot Prep - Branding

• Brand Sakai for Whitman
• Name other than Sakai

CLEO

• Collaboration and Learning Environment (online)
• Web developer
  – Look & feel
## Location: My Workspace Resources

### Resources

<table>
<thead>
<tr>
<th>Title</th>
<th>Actions</th>
<th>Created By</th>
<th>Modified</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Workspace Resources</td>
<td>Revise properties</td>
<td>Add</td>
<td>Mike Osterman</td>
<td>12/20/05</td>
</tr>
<tr>
<td>Presentations</td>
<td>Revise properties</td>
<td>Add</td>
<td>Mike Osterman</td>
<td>12/20/05</td>
</tr>
<tr>
<td>Sakai Java Framework</td>
<td>Revise properties</td>
<td>Add</td>
<td>Mike Osterman</td>
<td>12/20/05</td>
</tr>
<tr>
<td>IMDB</td>
<td>Revise properties</td>
<td>Duplicate</td>
<td>Mike Osterman</td>
<td>07/22/05</td>
</tr>
</tbody>
</table>
### ARTS 180A BB Resources

<table>
<thead>
<tr>
<th>Title</th>
<th>Size</th>
<th>Created By</th>
<th>Last Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;One Bloch Over&quot; Columns</td>
<td></td>
<td>Ben Bloch</td>
<td>01/17/06</td>
</tr>
<tr>
<td>Andreas Gursky Photos</td>
<td></td>
<td>Ben Bloch</td>
<td>01/17/06</td>
</tr>
<tr>
<td>Beg. Time Based/Dig. Syllabus</td>
<td></td>
<td>Ben Bloch</td>
<td>01/17/06</td>
</tr>
<tr>
<td>Chris Burden Performance Photos</td>
<td></td>
<td>Ben Bloch</td>
<td>01/17/06</td>
</tr>
<tr>
<td>Concept Sites</td>
<td></td>
<td>Ben Bloch</td>
<td>01/17/06</td>
</tr>
<tr>
<td>Garage Band Songs-Art180-Feb. 16</td>
<td></td>
<td>Ben Bloch</td>
<td>02/16/06</td>
</tr>
<tr>
<td>photoshop_pictures examples</td>
<td></td>
<td>Ben Bloch</td>
<td>01/17/06</td>
</tr>
</tbody>
</table>
Fighting feature creep

CLE0
Fall 2005 pilot

- 13 instructors with 30 courses
- Used for CLEo pilot and internal department projects
- Challenges
  - Response time issues
    - Rutgers University
  - “dot” files for Macintosh WebDAV
    - Texas State University, San Marcos
Fall 2005 pilot surveys

- Faculty
  - Pleased with CLEo pedagogically, support
  - Some tools need work

- Students
  - 2/3 had previous Blackboard experience
  - 98% enamored to ambivalent

“I like CLEo better than Blackboard, partly just because it is more pleasing to look at.”
Spring 2006 pilot

• 22 instructors total with 47 courses
• No major issues so far
  – Network hardware failure
  – Self-sabotage
• Didn’t upgrade to 2.1
  – Woes of patching
Other Activities

- Dec 2005: Attended 3rd Sakai Conference
- Feb 2006: UC Davis Programmer’s Bootcamp
- Mar 2006: Contacted ~60 faculty currently using or had used Blackboard
- April 2006: Decision to move forward Fall 2006
Production Hardware

Redundancy
Reliability
Ease of maintenance

Connected to Storage Network

Existing pilot server convert to database
1x duplicate of pilot server - database
2x dual, dual-core, 8GB - app servers
1x lightweight, 2GB - load balancer

Total budget $18,500
Summer 2006

- Finish Blackboard Archive importer
- Training for remainder of faculty
- 4th Sakai Conference - Vancouver B.C.
- Release/retract of course materials
- Improved discussion board (Indiana U.)
- Datatel course enrollment integration
Other future possibilities:

• Integration with the Library catalog/search
• CAS (single sign-on)
• Assessment tools
• Course roster with photo ID
• Content syndication (RSS, Podcasting)
• Student e-Portfolios
• uPortal Integration
Lessons Learned

CLEO  Sakai
What we learned

• Administrative buy-in & budget
• Get involved in the Sakai community
  – Mailing lists
  – Sakai Wiki (documentation)
  – Conferences
• Transparency & frequent communication
What we learned

- Ask Sakai community for help
- Lobby for the features you need
- Let the bigger institutions do the heavy lifting
- Don’t customize core pieces
- Hold back tools you don’t need
## Material costs & expenses

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPP Membership</td>
<td>$5,000</td>
<td>3 years</td>
</tr>
<tr>
<td>Pilot server hardware</td>
<td>$4,500</td>
<td>4 year cycle</td>
</tr>
<tr>
<td>Production hardware</td>
<td>$18,500</td>
<td>4 year cycle</td>
</tr>
<tr>
<td>Conference travel</td>
<td>$3,000</td>
<td>1-2 years</td>
</tr>
</tbody>
</table>
Staffing requirements

- Project lead - 0.5 FTE
  - 0.25 Project management & pilot group interaction
  - 0.15 coding/server administration
  - 0.10 community interaction
- CMS/LMS Administrator - 0.25 FTE 1 month/term
- Graphic designer - 8 hours total
- Training & Documentation
  - 20 hours/month between terms
  - 8 hours/month during term
Erase the Blackboard
Chalk one up for
CLEo
Pilot 2005-6

pitterk@whitman.edu
ostermmg@whitman.edu