

Collaborative Tools Strategy

University of California, Berkeley

Spotlight: Lightweight Development IT Skills

Goal 5 of the Campus Collaborative Tools Strategy for UC Berkeley addresses the need to "train our workforce to work with and support new collaborative technologies and architectures, while protecting privacy and keeping data secure." In Goal 5b, a set of recommendations is made that the campus grow skills in its workforce in using IT tools and software development frameworks to create "lightweight" services and systems, in order to better support collaborative tools. This appendix provides more in-depth discussion regarding those recommendations.

Creating and enhancing campus IT services is often, necessarily, a time-consuming and complex process. However, an emerging set of tools and frameworks are beginning to offer the promise of making it possible to build simple, lightweight, and yet often surprisingly effective services and systems much more rapidly: sometimes within just days or weeks, not months or years.

These tools and frameworks can also perform two other important roles: in prototyping, to assess customer requirements and test iterative improvements; and in integration, helping to rapidly connect new collaborative tools with institutional data and other campus systems and services.

Some of the categories in which these tools and frameworks reside include:

- Web services frameworks, that can rapidly make data available to campus and departmental application programmers in ways that are simple and consistent to access. Examples: CXF, Metro, Restlet.
- Consumer and enterprise "mashup" editors or servers, providing a set of tools for flowing data through "pipelines" connecting services and systems, within which data can be combined, extracted, and transformed. Examples: Yahoo! Pipes, WSO2, Serena Business Mashups, JackBe.
- Tools and frameworks for rapidly building forms-based applications on top of simple database tables or views. Examples: Zoho Creator, Wufoo.
- Application programming interfaces to integrate lightweight services provided by service providers in the Internet "cloud" with campus services and systems.
- Programming and scripting techniques for "remixing" or "mashing up" data from multiple sources to build new and innovative services. These techniques often integrate various off-the-shelf tools; a variety of data sources, each often providing their own unique application programming interfaces; and software development frameworks.

In order to take full advantage of these new tools, frameworks and techniques, campus and departmental IT staff will need orientation around how their strengths and limitations, and training in their selection and use. New software development and management techniques, for documenting and managing the delivery of services and systems created using these new lightweight approaches, may also be required.