NORTHERN ARIZONA UNIVERSITY

Senior Capstone
Design 2001-2002

Proposal Presentation

Team TerraUser

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http://www.cet.nau.edu/~dw2/terrauser/

Team Information

Team TerraUser

	Team Roles	Project Lead Roles
Michelle L. Harr	Leader/ Communicator	DB, JDBC
Daniel Wallace	Website Coordinator	JSP, HTML, CSS
Naoko Tsuneakawa	Secretary/ Document Coordinator	SSL, Web Server

Sponsor Information

Deborah Lee Soltesz

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Web Mistress

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http://terraweb.wr.usgs.gov/

Definition of the problem

- TerraWeb applications fairly new.
- USGS TerraWeb applications have minimal security.
- Users not required to login to access web applications.
- No user management system in place.
- Data management/analysis is the main focus of these applications; if work is to be done using these applications some sort of security standards need to be implemented.

Project Description

The objectives of this project are to design and implement an efficient and secure interface to USGS TerraWeb applications, along with a stand-alone application used to administer a user management system. The software will allow users to securely and easily access other interactive TerraWeb applications.

Business Issues

- Security
- User-friendly interface
- No browser specific tags, and no cookies
- Must comply with the Rehabilitation Act of 1973, Amendments of 1998, section 508
- Server is accessible and fast enough to handle the given number of users
- How to allow access to multiple web applications
- How to effectively manage users
- How to manage what data users have access to

Value of the Solution

- This project would facilitate/support a way for users to securely and easily have access TerraWeb applications.
- The client would have a generic interface to all of the current and future web applications.
- The TerraUser solution would be a cost effective and easily modifiable solution to current and future needs.
- It does not have the extreme cost or confusing complexity of commercially available solutions to this problem.

Functional Requirements

1. User Account

- Storage of user information:

  login name, password, priority level, access rights, membership, interface preference, etc.

- Maintained through interface by administrator

Functional Req. (cont.)

2. Centralized User Login System

- User authorization to access TerraUser applications
- Password encryption
- Password change by user
- Password configuration setting by Administration

Functional Req. (cont.)

3. Interactive Web Application for Administrators

- Add/delete information
- Add/delete users
- Alter information stored to users
- Password configuration setting
- Monitoring of user activities

Functional Req. (cont.)

4. Interactive Web Application for Users

- Access to TerraUser Applications
- Interface customization
- View/manage user's information
- Allow to change user's password

Constraints

- Completely web-based interface
- General security
  - secure HTTPS protocol
- HTML 4.0 standard
- Use of specified technologies
- No training of use interface
- Basic help for usability

Performance Requirements

- User-friendly interface for non-technical users
- System accessibility
- Technology use as specified
- highly secured
- Maintainable
- Scalability

Risks and Mitigation

- Time management
- Requirements change
- Compatibility issues
- Security issues
- Hardware failure
- Lack of experience

Design/Development Paradigm

- Modular Design
- Bottom-up Design Flow
- Evolutionary Design Model

Deliverables - Documents

- Four major documents:
  - Proposal
  - Functional Specification
  - Usability Report
  - As-Built Report
- Web-site http://www.cet.nau.edu/~dw2/terrauser/
  - All documents and standards posted

Deliverables - Prototypes

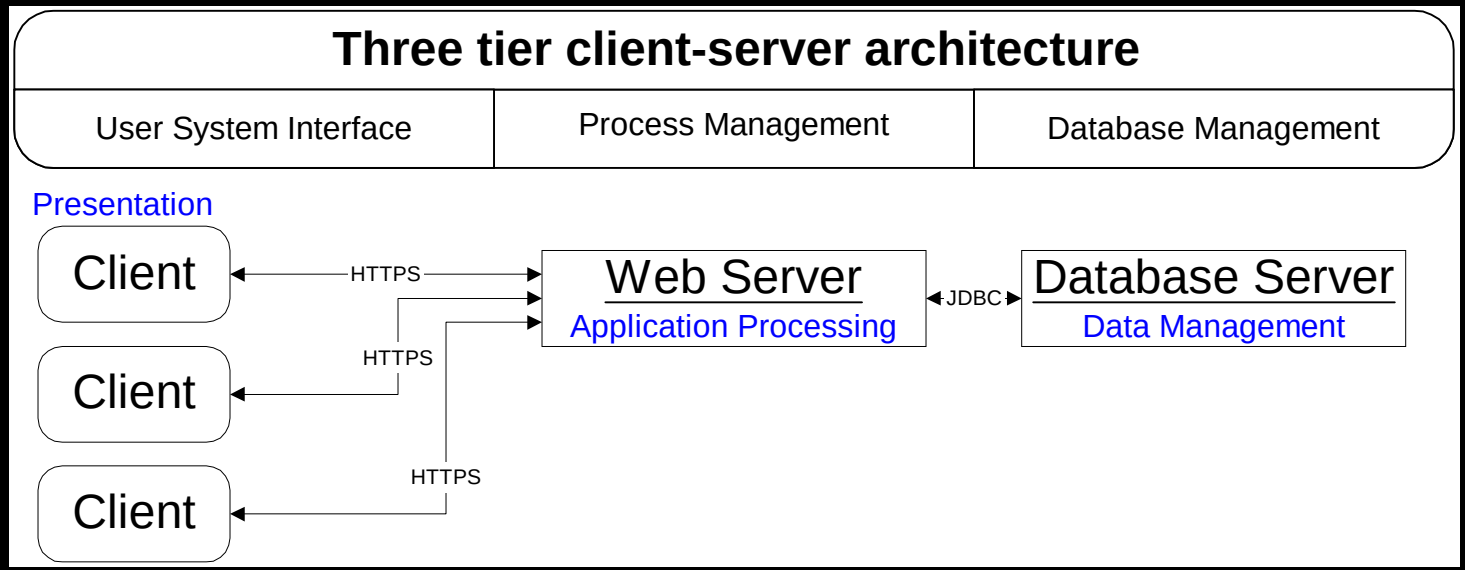
Milestone	Objective
Database Setup	Database created with structure required for user management.
Database Interface	Module implemented that handles all required database transactions to the web-interface.
Session Management	Reliable and secure user tracking system.
User Information Management	Module implemented that controls access/modification of user information through database interface.
Web-Interface Integration	Encapsulation of available functions in dynamically generated web pages.
Security Integration	Make internal transactions secure via encryption.
System Integration	Encapsulation of all desired functions in one package. Successful installation and run on desired server.

Tools/languages

Category	*Product / tool using*
Operating System	SuSE Linux
Web Server	Apache
Java Server	Apache Tomcat
Server Side Interfacing	Java, JDBC, JSP, Java Script
Database	MySQL
User Interface	HTML 4.0 minimum
Security	SSL

Tools/languages used in design and development and other specifics.

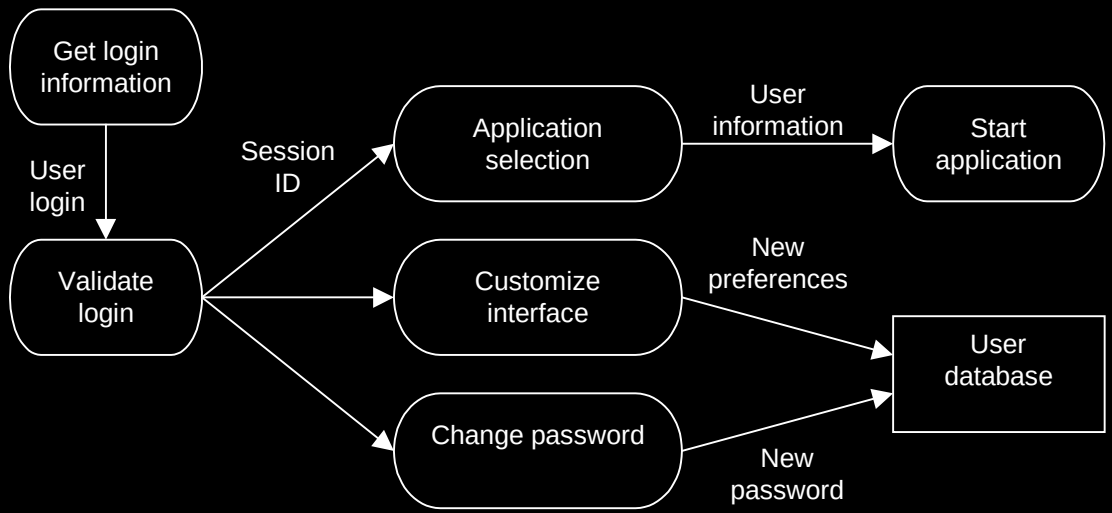
High-Level Architecture



- Flexible/Reusable
- Scalable
- Reliable

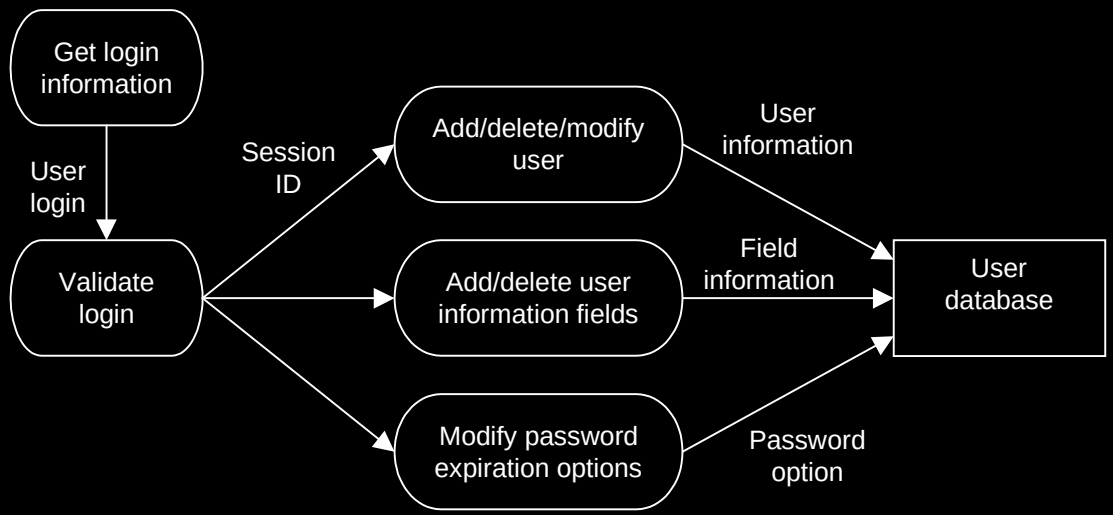
High-Level Architecture

- Data flow diagram of client access



High-Level Architecture

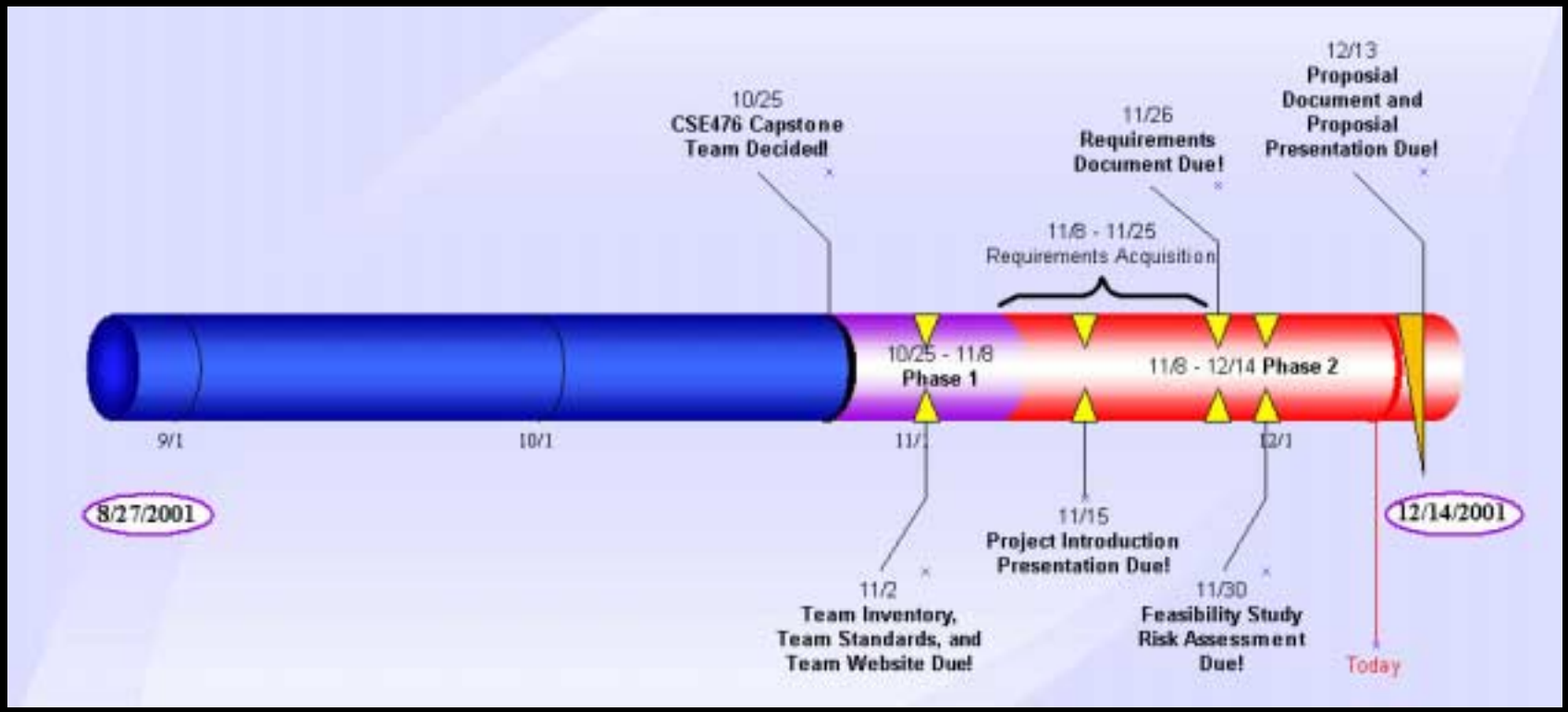
- Data flow diagram of administrator access



Budget

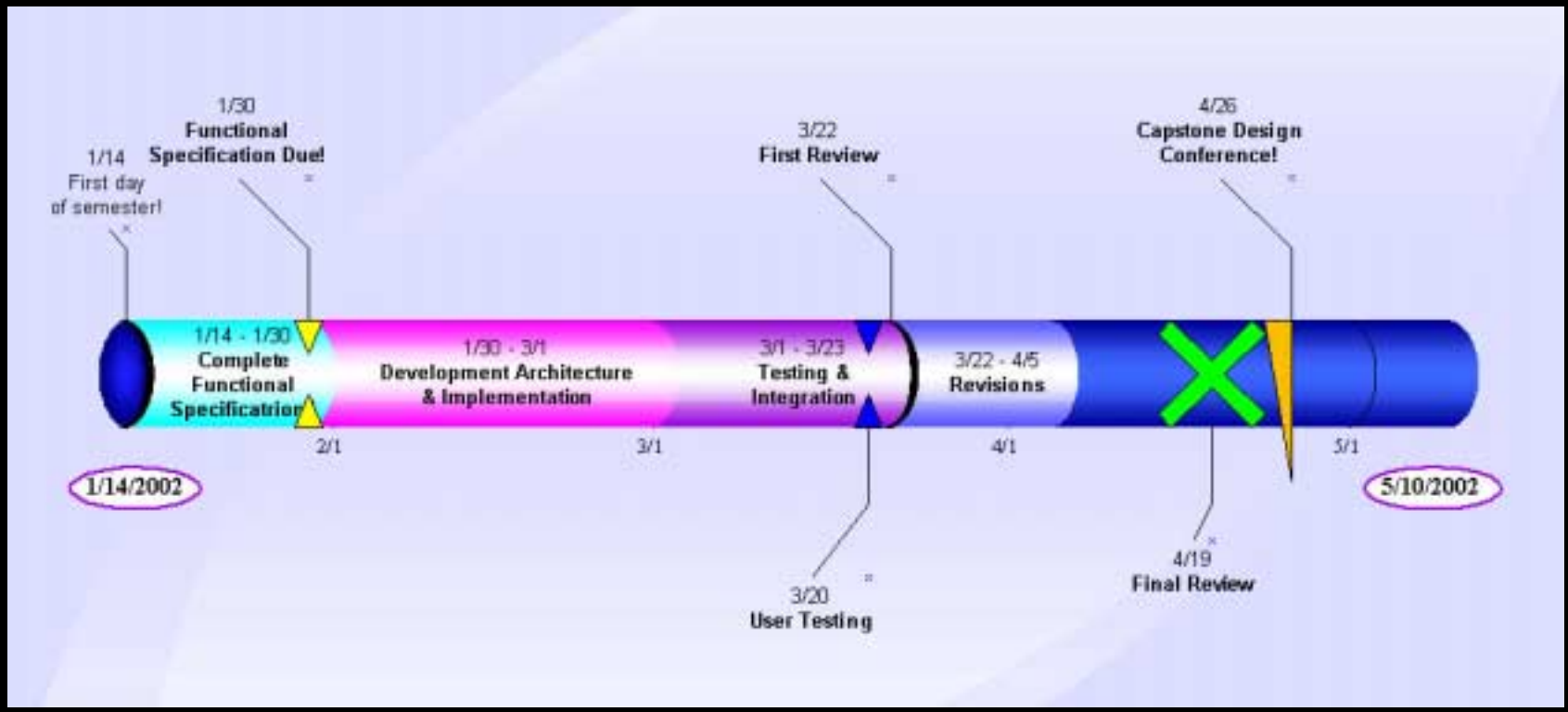
Items	Cost
Documentation Resources (Books, etc)	$150
Printing / Copying	$100
Communication	Free (Local Telephone)
Travel	Negligible (Local)
Hardware	Free (Already available)
Software	Free (Open Source)
Network Connection	Free (Provided by USGS and NAU)

Timeline Fall 2001



Events on timeline are finalized and have been completed.

Timeline Spring 2002



Events on timeline are a rough estimate of spring 2002 events.

Q & A