

WebSpace

The File Frontier

A Web-Based File Storage Solution for Students and Faculty

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Overview

- Background
- Requirements
- System Overview
- User Stats
- Hurdles
- Lessons Learned
- Questions

Background

"In every revolution, there is one man with a vision."

Captain James Tiberius Kirk

The Vision – Spring 2002

As part of the university's instructional technology fee, each student will receive a "free" storage allocation, which can be used to store files and publish personal Web pages.

The Existing Environment

- Personal publishing – since 1994
 - Myriad options
 - Unix
 - VMS
 - Windows Server
- New way to offer these services
 - Simple, intuitive, ubiquitous

FTP

SCP

SSH

Samba

CIFS

WebSpace

What Is WebSpace?

WebSpace is a file storage system provided to students, faculty and staff at The University of Texas at Austin.

WebSpace features include:

- File Storage – provides 75 megabytes of space
- Personal Web Publishing - basic personal Web publishing via a Web content folder
- File Sharing - each user of WebSpace can share a file or folder with a group or individuals

What is WebSpace? cont ...

- WebSpace can be used via a Web interface that allows easy access
 - (uploads, downloads, file management options, etc.)
- Drag & Drop capabilities via WebDAV (Web-based file transfer)
 - Windows 98/ME
 - Windows 2000/NT/XP
 - Macintosh OS X/Classic

Strengths of WebSpace

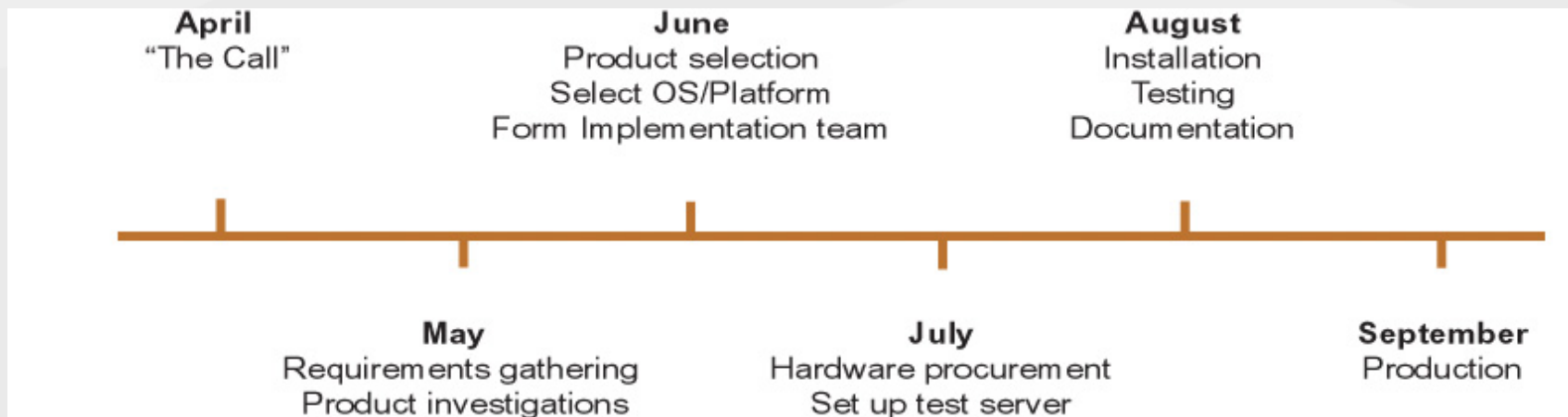
- **Collaboration**
 - Students and teachers are working together not just in the classroom or library, but from anywhere with access to the Web.
 - Publishing home pages
 - Accessing and sharing files from any location through the convenience of a Web browser
- **Secure**
 - ITS only permits https (SSL) access to WebSpace. This secures the username/password from being in the clear and protects the data.

Uses

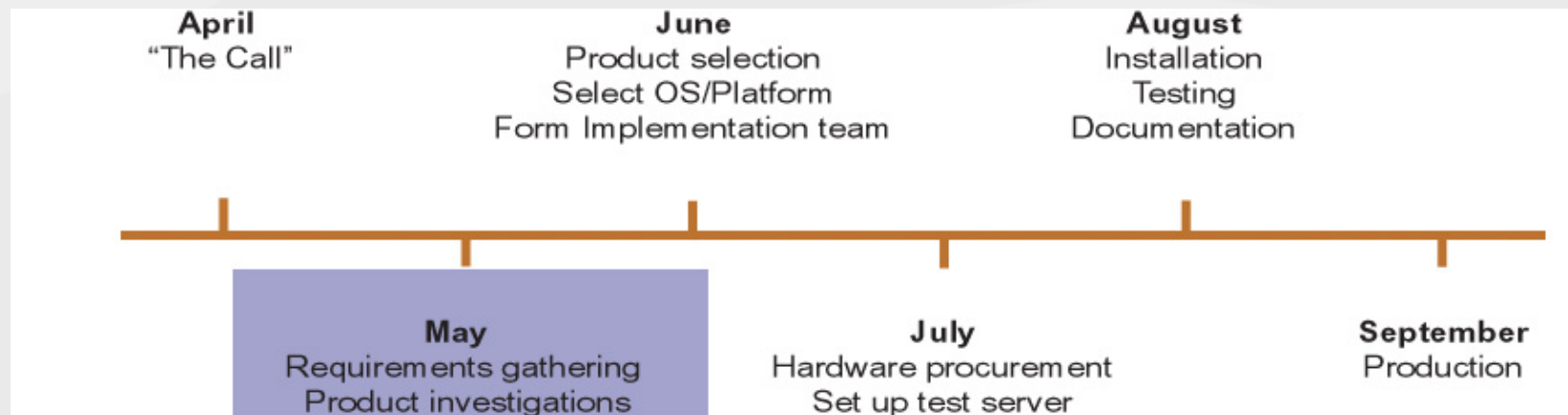
- Staff
 - Presentations
 - Sharing documents
- Faculty
 - Sharing files with students
- Students
 - Pictures
 - Mp3s
 - Floppy replacement

Timeline

Spring 2002
Compressed timeline for implementation



May 2002



Requirements

- Feature-rich Web interface
- Broad client support, providing “Drag & Drop” capabilities (Windows, Mac, Linux)
- Secure (SSL)
- Personal Web publishing
- File sharing

Additional Features

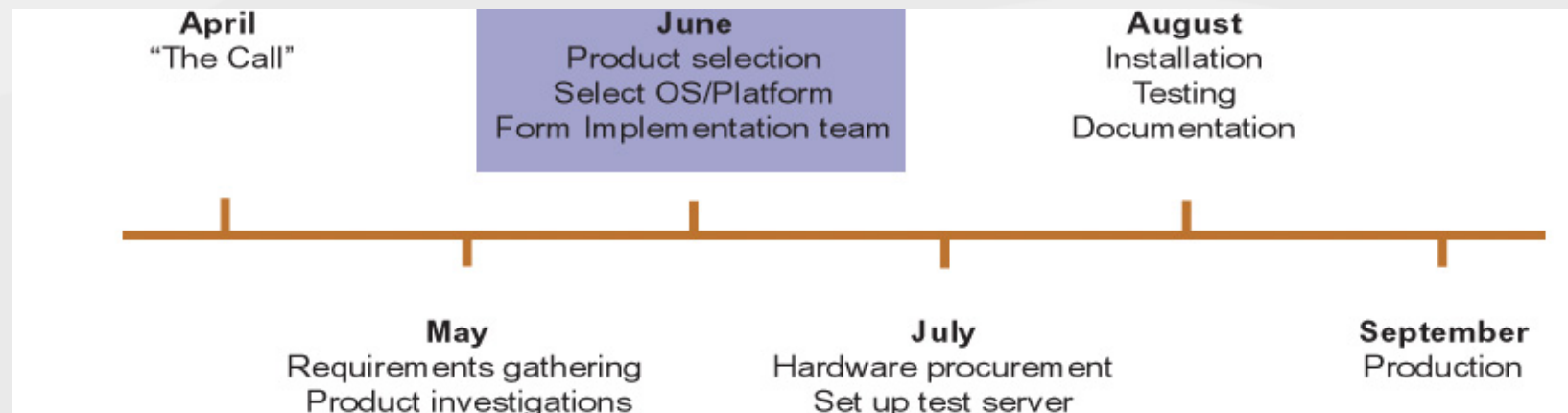
- Integration with existing campus authentication scheme (EID)
- Resource Management
 - Quotas
 - Bandwidth
- File sharing with users outside of the UT domain (users without accounts)
- WebDAV

Task Force

Consisted of Information Technology Services staff with assistance from broad coalition of campus technologists from various departments and academic units

- Researched product options
- Explored options at our peer institutions
 - What had worked?
 - Not worked?

June 2002



Top 3 Products

- IIS with WebDAV
- Apple Digital Lockers
- Xythos Web File Server

Xythos

Most complete functionality of any of the other solutions
given the timeframe.

- Web interface
- LDAP support
- Access control lists
- Bandwidth limits
- Quota management
- WebDAV support
- Ticketing system (for users without EIDs)
- Scalable

Platform Selection

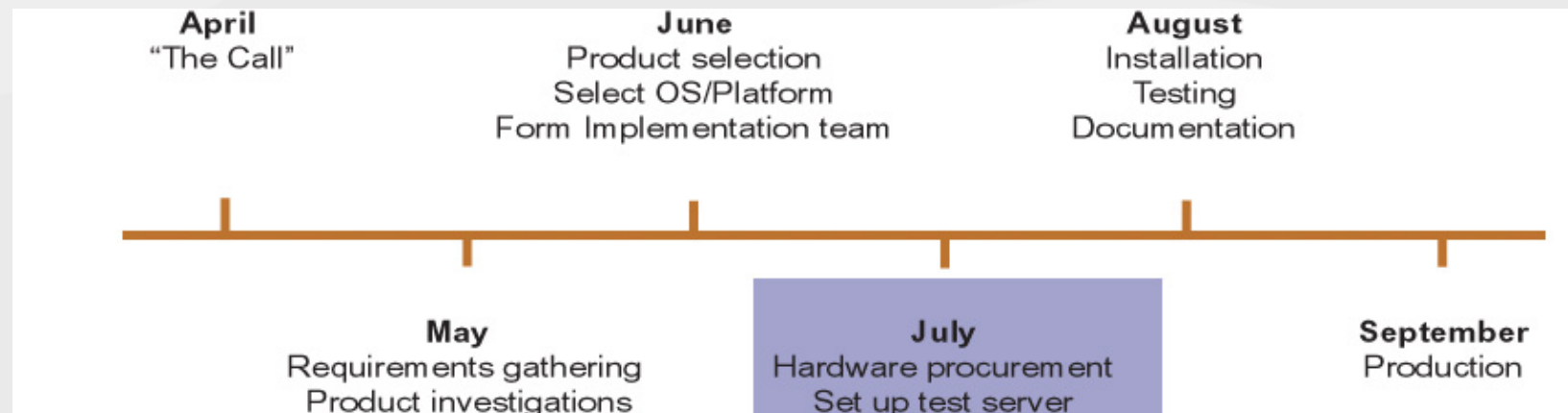
- Unix
 - Staff resources
 - Expertise in providing campus-wide enterprise services

The Implementation Team

- Small Technical Staff
- Part-time
- Diverse

Trent Gayle	Technical Lead
Mike Cerda	Unix Admin
Kamran Ziai	Windows Admin
Larry Liberty	Active Directory
Julie Fernandez	Communications
Elaine Ward	Policy
Cam Beasley	Policy and Security
Tommy Oates	Training
Bob Penman	Help Desk
PJ Abrams	Project Manager

July 2002



Specifications: WebSpace Hardware

- Sun Fire 280R servers with each server containing:
 - 2 UltraSPARC III Cu 900MHz processors
 - 3 GB of memory
 - 2 36GB 10,000RPM UltraSCSI drives
 - 1 Gbps Ethernet card

Specifications: Storage

- Dedicated Netapp F840 with 3TB of disk space
- Connected with a Gbps Ethernet card

Specifications: Software

- Solaris
- Apache
- OpenSSL
- Tomcat
- Xythos WFS
- Oracle

Specifications: Authentication

- Active Directory
- In production with nearly 900,000 EIDs loaded
- ~70,000 users are eligible for WebSpace
- WebSpace was the first major implementation of AD

WebSpace

1.

Connection

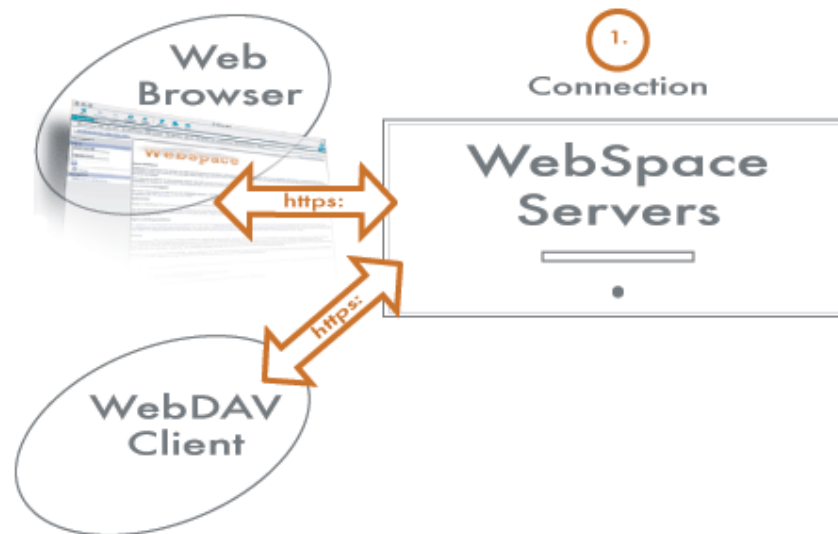
WebSpace
Servers

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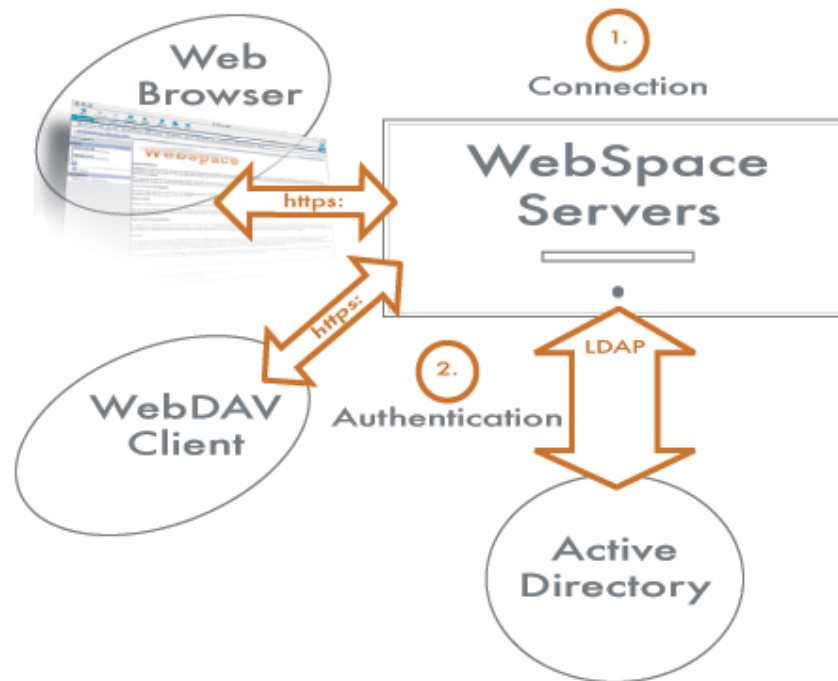
WebSpace



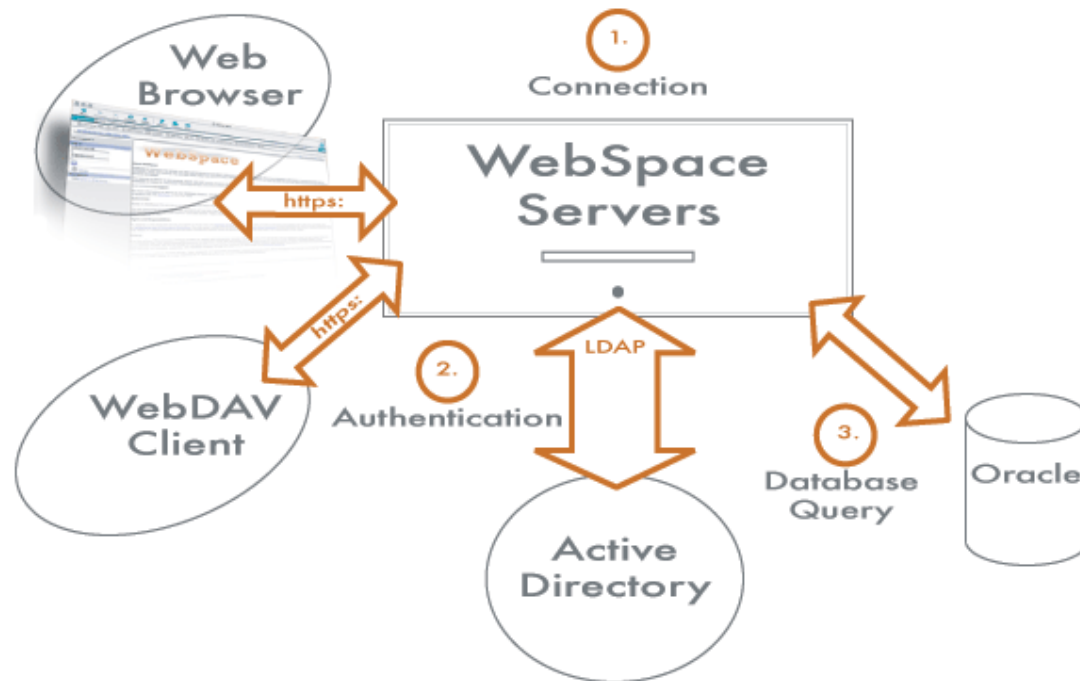
WebSpace



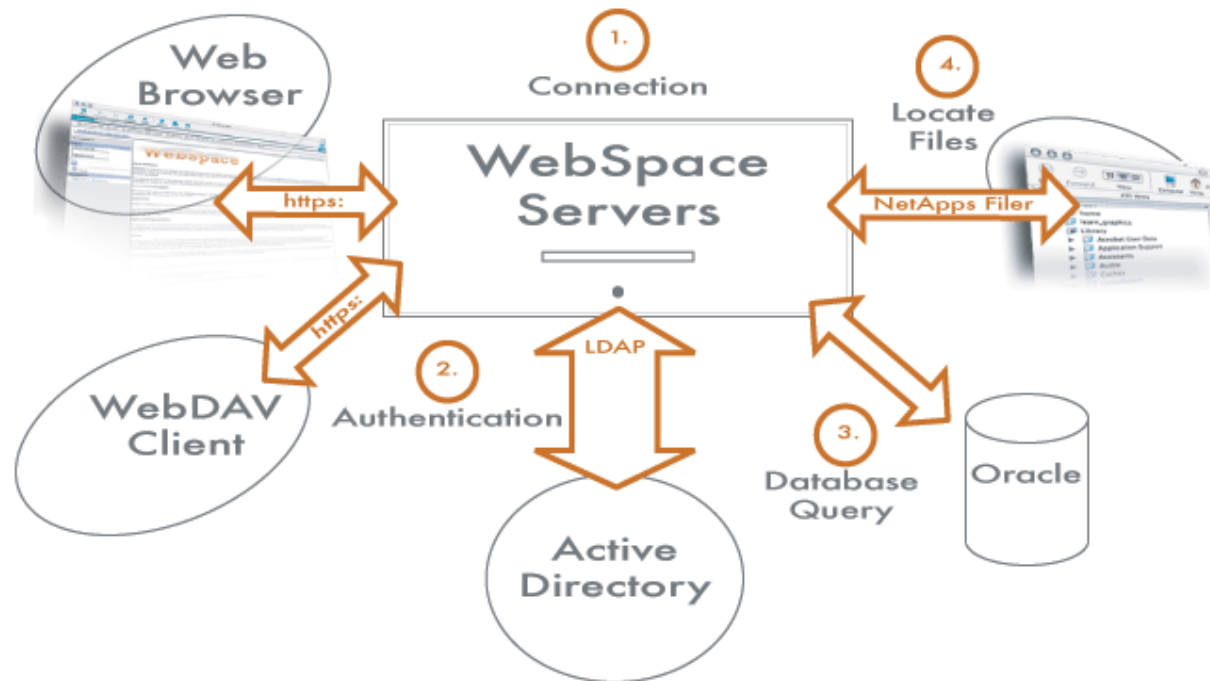
WebSpace



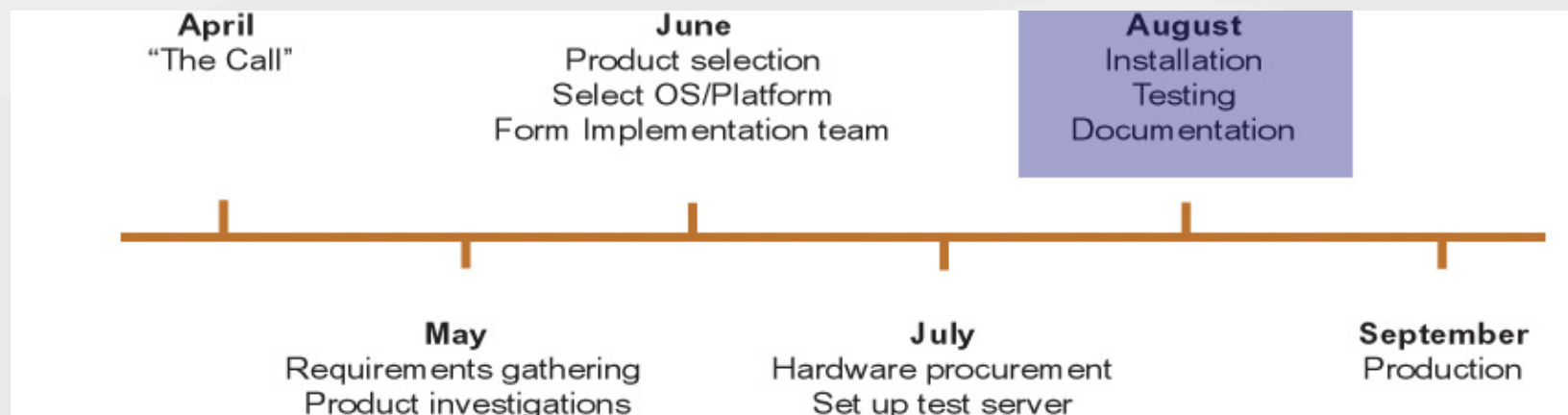
WebSpace



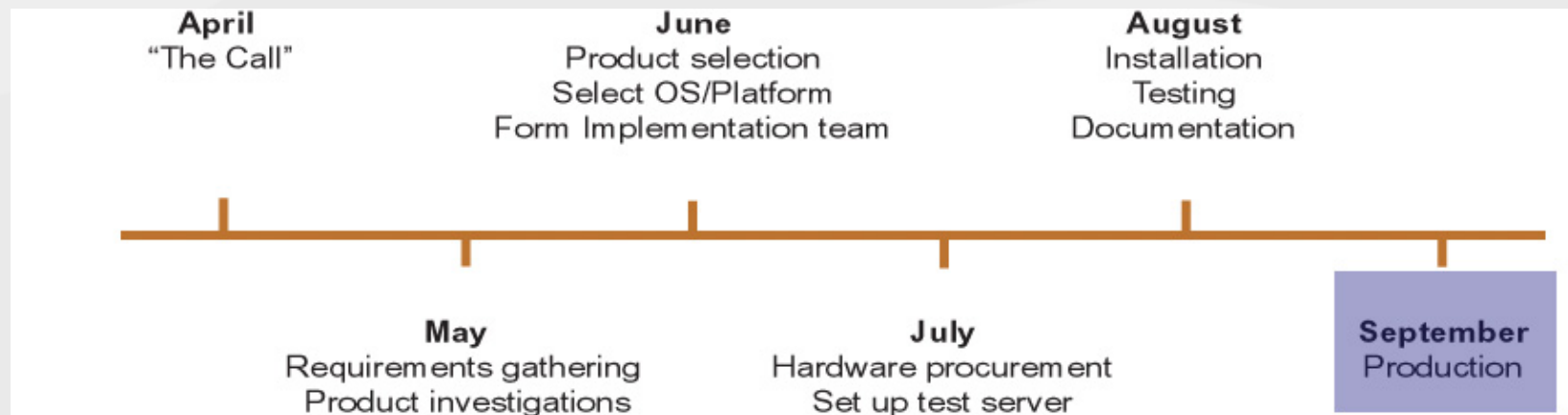
WebSpace



August 2002



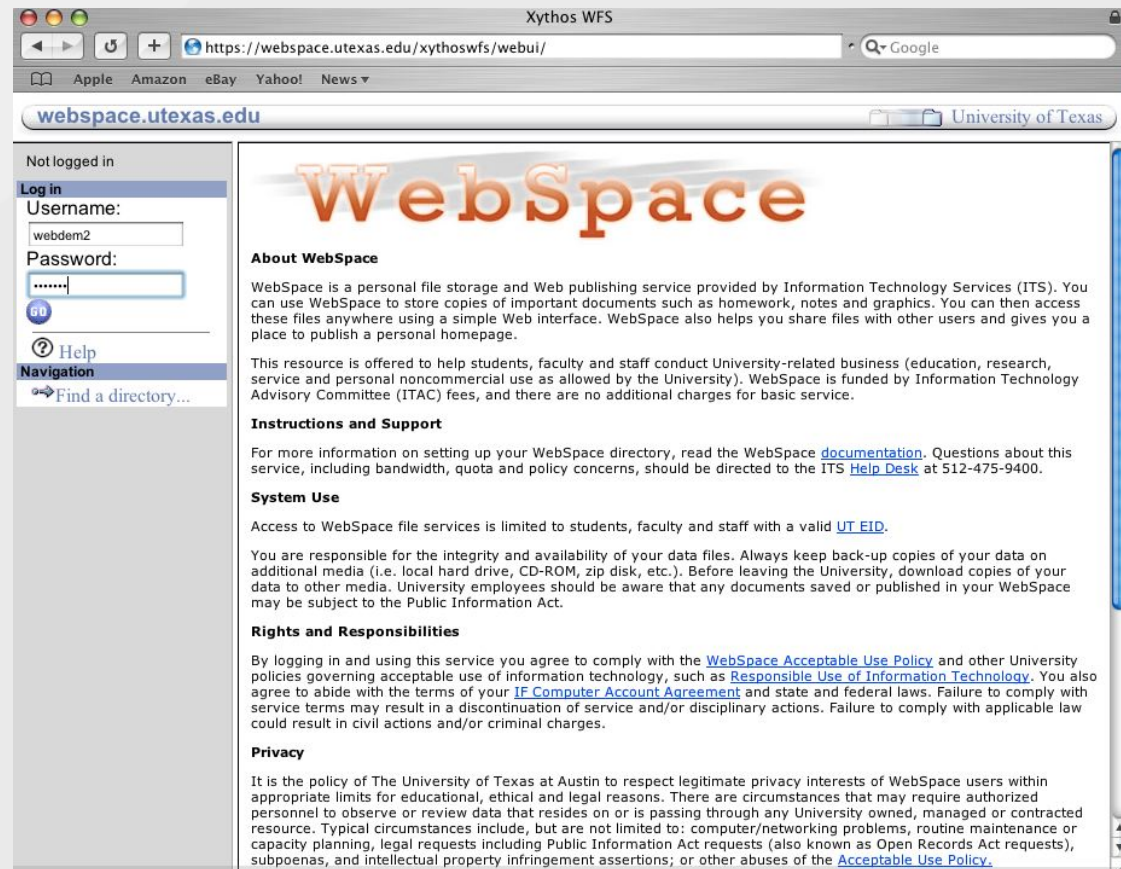
September 2002



Release

- Fall 2002
 - Marketing
 - Word of mouth
 - Averaged ~ 500 new users/week by the end of the fall semester

Web Interface: WebSpace Login



WebSpace: Web Interface

The screenshot shows a web browser window titled "Xythos WFS" with the URL <https://webspace.utexas.edu/xythoswfs/webui>. The page header includes "webspace.utexas.edu" and "University of Texas".

On the left side, there is a sidebar with the following sections:

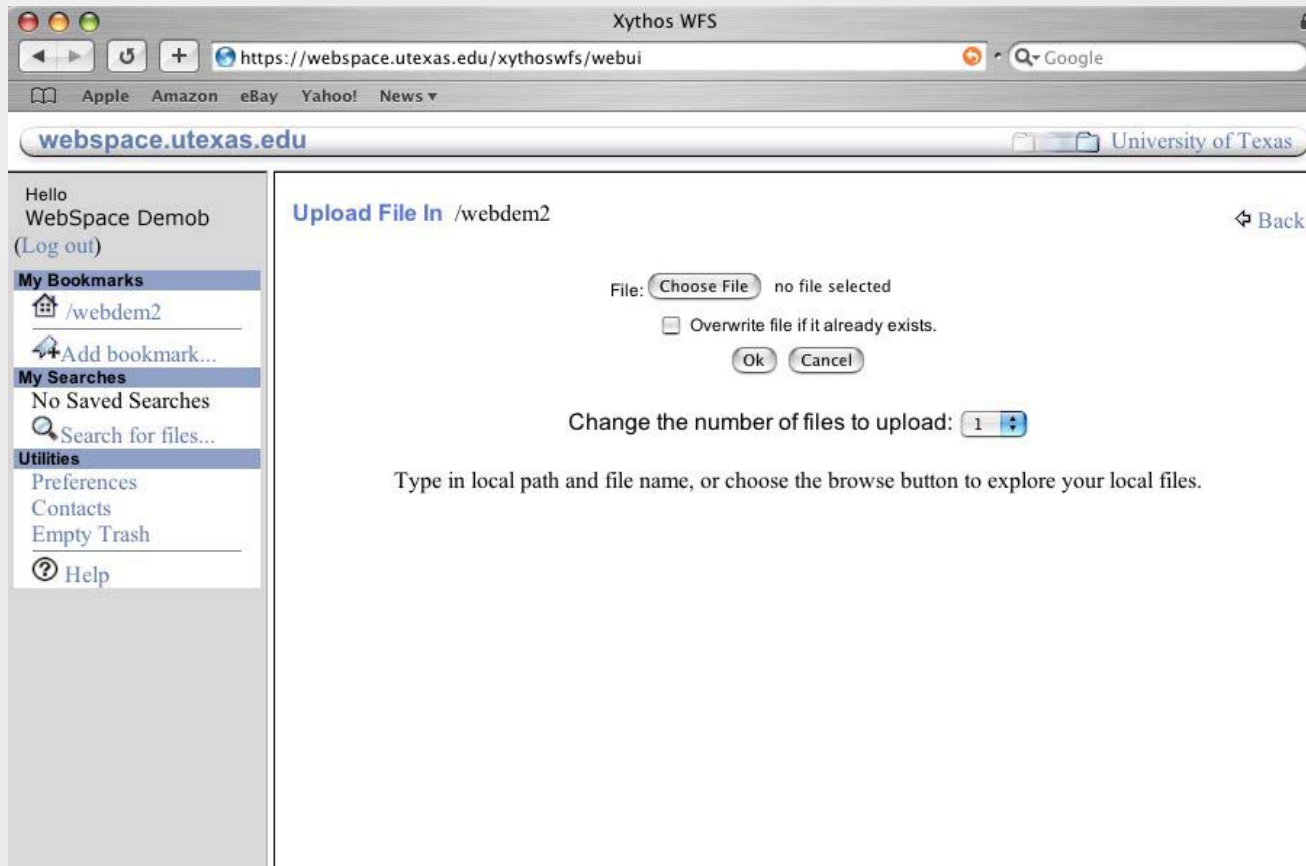
- Hello WebSpace Demob (Log out)
- My Bookmarks: [/webdem2](#), Add bookmark...
- My Searches: No Saved Searches, Search for files...
- Utilities: Preferences, Contacts, Empty Trash, Help

The main content area displays a file directory listing for "/ webdem2". The interface includes a toolbar with icons for Up, Go To, Upload, New Directory, Move, Copy, Delete, Rename, and Email. A "Refresh Directory Listing" link is also present.

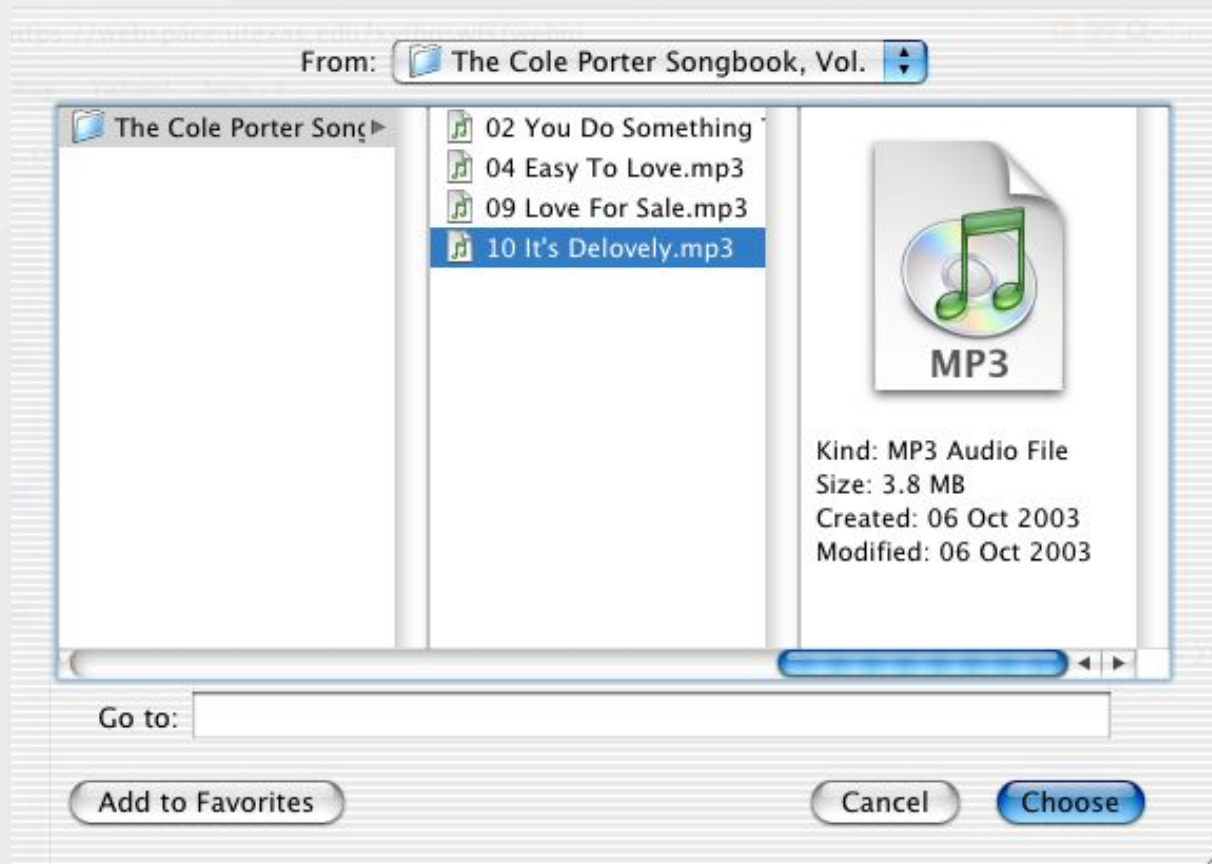
Name	Info	Lock	Share	Delete	Modified	Size
<input type="checkbox"/> Scanned Images					Friday, June 13, 2003 1:09 PM	43.06M
<input type="checkbox"/> cher					Sunday, November 2, 2003 10:52 PM	84K
<input type="checkbox"/> hat_shaped_hat					Sunday, November 2, 2003 10:17 PM	2K
<input type="checkbox"/> trash					Sunday, November 2, 2003 10:48 PM	0
<input type="checkbox"/> www					Sunday, November 2, 2003 10:51 PM	77K
<input type="checkbox"/> 10 It's Delovely.mp3					Sunday, November 2, 2003 11:09 PM	3.78M
<input type="checkbox"/> georgeRupp.ram					Sunday, November 2, 2003 10:46 PM	78
<input type="checkbox"/> resume.doc					Sunday, November 2, 2003 10:25 PM	762K
<input type="checkbox"/> sports_night_episode_guide					Sunday, November 2, 2003 10:46 PM	3K
<input type="checkbox"/> star_trek_quiz.txt					Sunday, November 2, 2003 10:28 PM	1K
<input type="checkbox"/> thesis.doc					Sunday, November 2, 2003 10:23 PM	762K

At the bottom of the listing, there are links for "Choose all" and "Clear all", and a summary: "Total size: 48.50M (Quota: 75.00M, Available: 26.49M)".

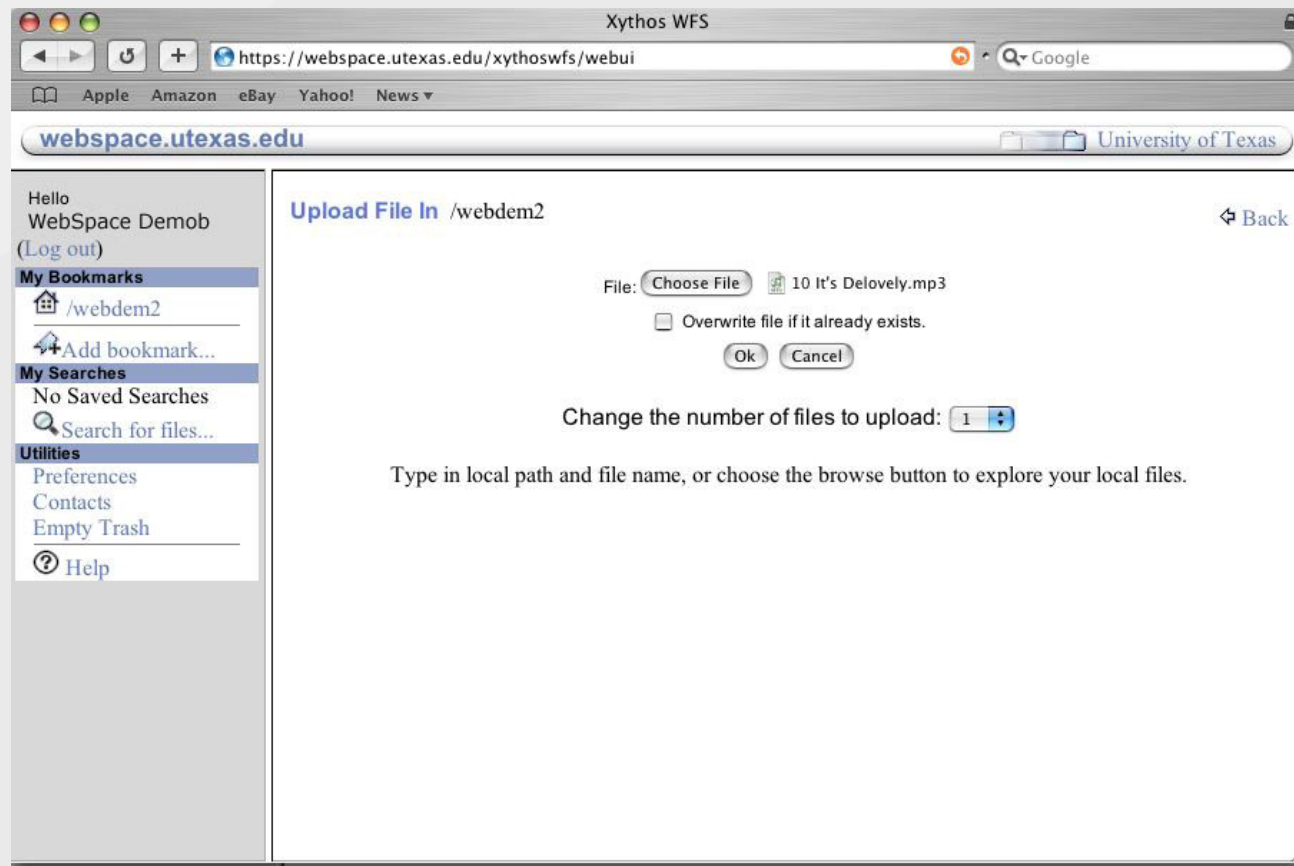
WebSpace: File Selection



WebSpace: File Browser



WebSpace: Upload



WebSpace: File Listing

Directory: / webdem2

Name	Info	Lock	Share	Delete	Modified	Size
Scanned Images					Friday, June 13, 2003 1:09 PM	43.06M
cher					Sunday, November 2, 2003 10:52 PM	84K
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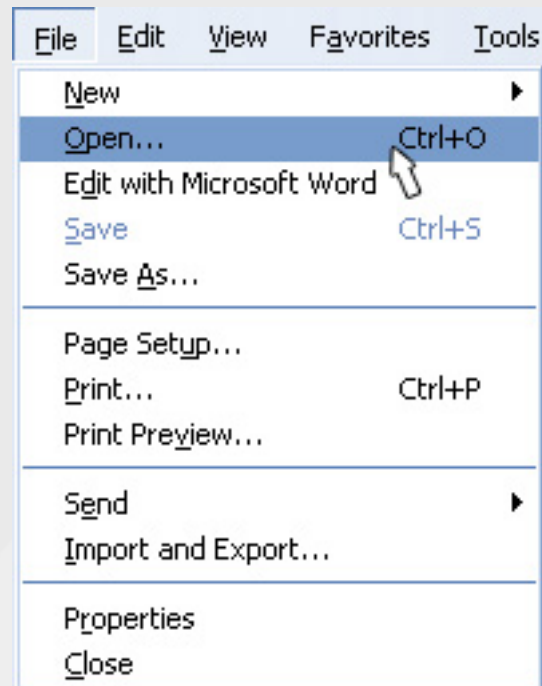
Choose all Clear all Total size: 48.50M (Quota: 75.00M, Available: 26.49M)

WebDAV

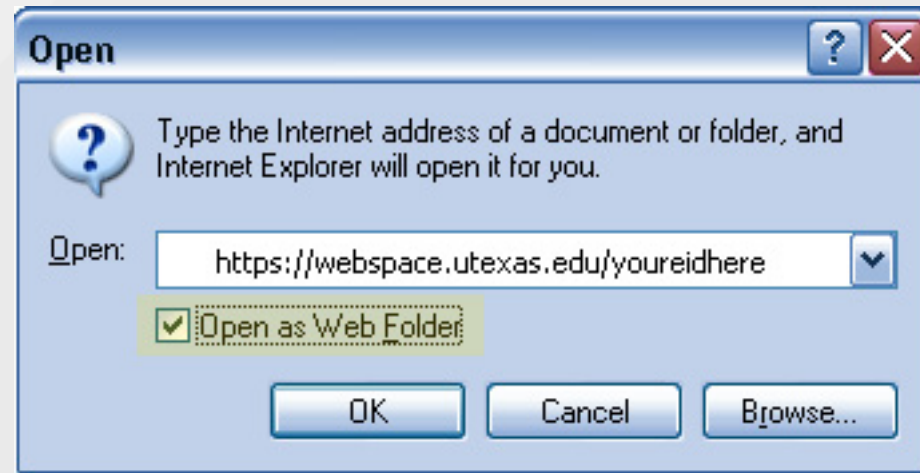
- DAV → Distributed Authoring and Versioning
 - Extension of the HTTP protocol
 - Transfers made via port 80/443
 - Broad client support
 - Windows
 - Macintosh (OS X/Classic)
 - Unix/Linux

<http://www.webdav.org>

WebDAV: Windows

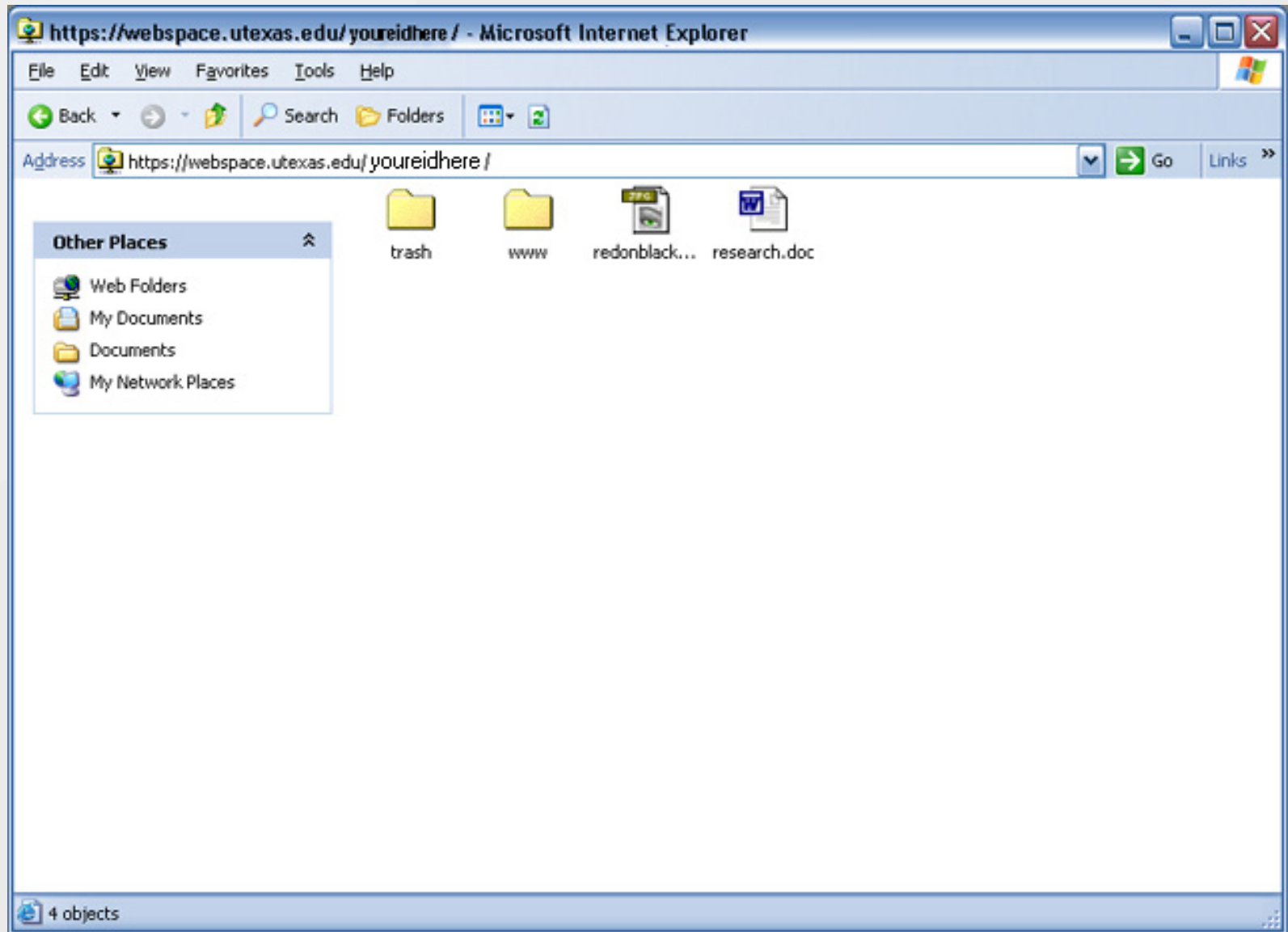


WebDAV: Windows



WebDAV: Windows



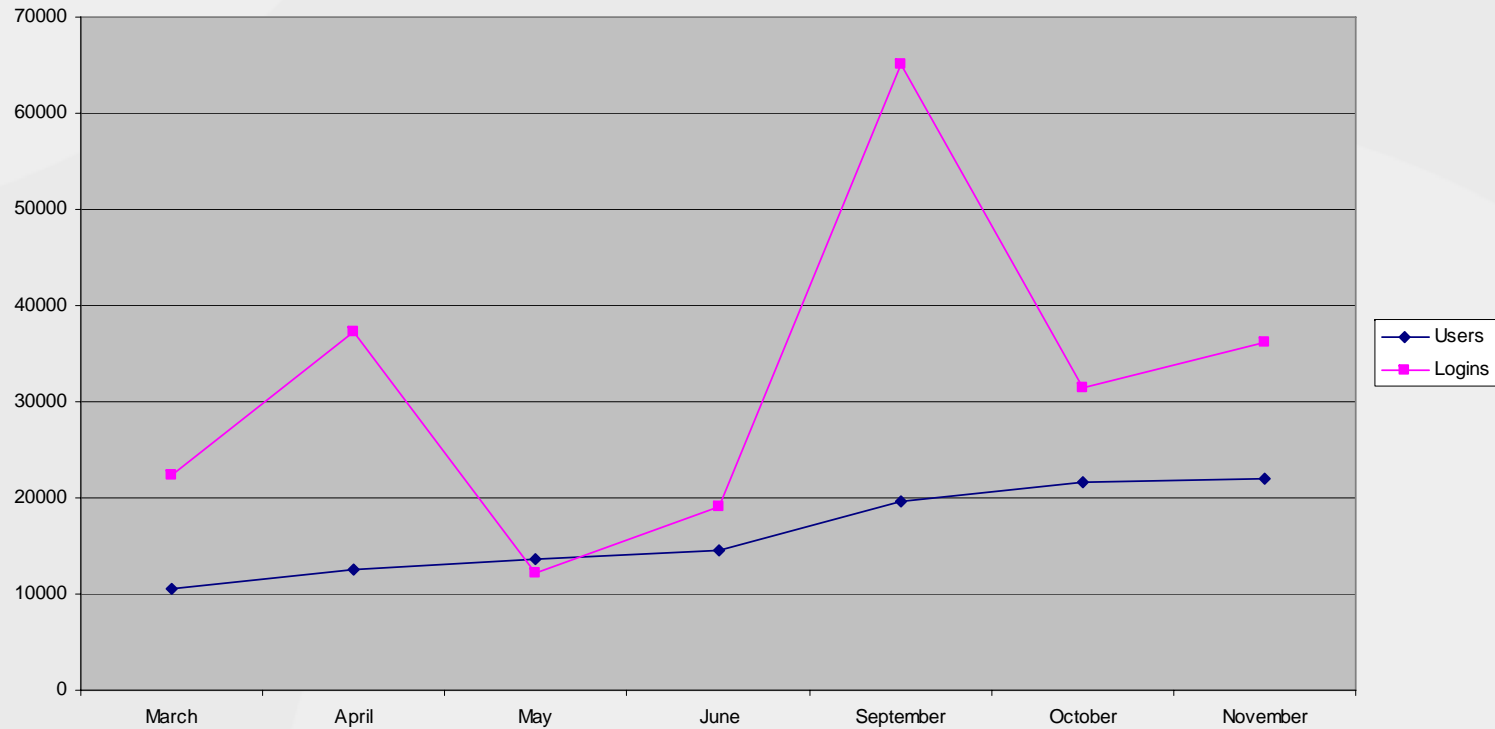


Usage

- **Total weekly Logins: 36229**
- **Total WebSpace Users: 22028**

Trends

2003 WebSpace Snapshot



Web Server Statistics

- **Distinct files requested:** 417,751 (414,259)
- **Data transferred:** 162.862 Gbytes
- **Avg data transferred per day:** 23.268 Gbytes

26-Oct-2003 to 01-Nov-2003

Hurdles

- Due to the nature of the WebDAV connections, all calls must be via SSL
 - Overhead
 - Search engines cannot index
- Problems with native WebDAV on OS X
- Cookie handling in Safari
- Not all Windows applications provide full WebDAV support
- Mac OS: MIME Types

Solutions

- Macintosh Client Support
 - WebDAV implementation does not support SSL
 - WebSpace Util 1.0,
 - Developer: Chris Cooley
- MIME type: Xythos Recent Release
- Documentation

Why is it a success?

- Executive sponsorship
- Broad coalition of ITS members involved
- Useful and easy tool
- No instructions needed
- Has become the “net floppy”

Beyond “The Call”

- Faculty and Staff
- Green Printing
- IKON

Lessons Learned

- Price of success
 - Bandwidth concerns
 - Performance
- Uneven client support
- Documentation
 - FAQs
 - Continue to work closely with Help Desk, Training & Communications

The Future

- More features:
 - Basic form processing
 - CGI options
- Increase space
- Increase bandwidth allocation
- Role-based accounts

Contacts

Project Manager:

- PJ Abrams (p.abrams@its.utexas.edu)

Technical Lead

- Trent Gayle (t.gayle@its.utexas.edu)

Presentation:

<http://www.utexas.edu/its/webSPACE/educause/>