WWW Distributed Authoring and Versioning (WEBDAV) Activity Overview

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Overview

- What is WEBDAV?
- History of WWW Distributed Authoring
- Summary of working group meetings
- Current work, plans for the future...
- Summary of proposed protocol specification

What is WEBDAV?

Working Group on Distributed Authoring and Versioning on the World Wide Web

Goal: to enable distributed web authoring tools to be broadly interoperable.

Home page:
http://www.ics.uci.edu/~ejw/authoring/

Facets of WEBDAV

There are many ways to view the DAV work:
- Collaboration infrastructure
- Meta-data infrastructure
- Collection infrastructure
- Versioning infrastructure
- Hypermedia infrastructure

Collaboration Infrastructure

- Whole and partial resource locking supports:
  - remote collaborative authoring of HTML pages and associated images
  - remote collaborative authoring of any media type (word processing, presentations, etc.)
- Infrastructure for development of asynchronous, widely distributed, hypertext-aware, collaborative editing tools.

Meta-data Infrastructure

- Meta-data support
  - (name, value) pairs, such as ("Author", "Neal Stephenson") can be created, modified, queried, and read on Web resources.
  - first class relationships allow the relations between resources to be captured (source code "implements" requirements, "table of contents")
- Infrastructure for recording information *about* Web data

Collection Infrastrcuture

- Remote name space management:
  - Copy resources
  - Move resources
  - Create and modify containers of resources (such as directories)
  - Redirect queries for resources
- Infrastructure for remotely organizing and viewing collections of Web resources

Versioning Infrastructure

- Versioning is integral (not an afterthought)
  - check-out, check-in
  - version graph history
  - give comments on check-out/check-in
  - server merge/diff
  - browse old versions
- Infrastructure for remotely versioning Web resources

Hypermedia Infrastructure

- The Web is predominantly HTML and bitmap images.
- WEBDAV provides facilities for creating multiway relationships (or n-ary relationships) between resources of *any media type.*
- Infrastructure for authoring hypermedia among all media types.

Distributed Authoring History (1990-1994)

- 1990: NeXT station prototype web authoring/browsing tool
    - WYSIWYG editing, inline creation of links
    - But, most of the world never sees it, instead sees widely distributed line-mode browser
- 1993: PUT added to HTTP/1.0 specification, but not implemented by NCSA
- 1993/4: Mosaic 2.4 reaches critical mass.
    - "Publish/Browse" becomes the dominant model for the web

Distributed Authoring History (1994-95)

- 1994: NaviPress/NaviServer developed
- 1994: Vermeer FrontPage developed
- 1994/1995: W3C Line Mode Browser
- Dec '95: WWW4 breakout session on distributed authoring tools
  - http://www.w3.org/pub/WWW/Collaboration/9512www4/auth-tools

WWW4 Breakout Session (Dec. 1995)

- Focus of session: Interoperability among distributed (i.e. client/server) web authoring tools
- Identified interoperability issues:
  - Common Access Control Model
  - "Lost Update" problem
  - New HTTP Methods: BROWSE, MKDIR
  - Editing Variants
  - Access to "raw" HTML before SSI processing
  - Strong authentication (e.g. MD5)

Distributed Authoring History (1995-1996)

- 1995 NaviPress/NaviServer and Vermeer FrontPage are released to public and start developing market for distributed authoring tools
- 1995 PUT moved to appendix of HTTP/1.0 spec. (i.e., postponed to HTTP/1.1)
- 1995/96: Rohit Khare at W3C researches a leasing and locking mechanism
  - http://xent.w3.org/~khare/6.852%20Project.htmld/index.html

Distributed Authoring History (early 1996)

- 1996: Vermeer purchased by Microsoft. Navisoft absorbed into America Online. These activities indicate major corporate support for distributed authoring.
- March 1996: Dan Connolly puts out a call for volunteers to coordinate distributed authoring activity
  - Jim Whitehead, U.C. Irvine, volunteers

Distributed Authoring History (mid 1996)

- May 1996: Formation of separate Distributed Authoring, Versioning WGs
    - mailing lists, home pages created
    - collection of interested parties
- 1996: Release of intranet-enabled word processors (Lotus WordPro, Microsoft Word) with HTML authoring support
- 1996: Netscape Navigator Gold supports HTTP PUT

Distributed Authoring History (cont'd)

- June 1996: IETF HTTP working group completes internet draft of HTTP/1.1
  - PUT method is part of standard
- July 1996: IETF HTTP working group completes internet draft on digest authentication
- July 1996: Meeting on distributed authoring on the WWW at AOL Productions, San Mateo, CA.

Distributed Authoring History (cont'd)

- September 1996: Separate working groups merge to form Working Group on Distributed Authoring and Versioning on the World Wide Web (WEBDAV)
  - first draft working group charter
- September 1996: WEBDAV meeting at MIT Faculty Club, Cambridge Mass.
  - Reaches agreement on requirements for distributed authoring, versioning

Distributed Authoring History (cont'd)

- November 14-15, 1996: WEBDAV meeting at Xerox PARC, Palo Alto California
  - Protocol design issues discussed in detail
  - Many major design decisions settled
- December 4-5, 1996: W3C Symposium: Distributed Authoring: Present and Future
- December 11, 1996: WEBDAV BOF at San Jose IETF Meeting.

San Mateo Meeting Summary

- Held July, 10, 1996 at AOL Productions, San Mateo, California (SF Bay Area)
- Brought together people interested in WWW Distributed Authoring and Versioning
- Presentations by Ron Fein (MS Word), Andrew Schulert (MS FrontPage), Dave Long (AOL), and Henrik Nielsen (W3C)

San Mateo Meeting Summary

- Outcomes:
  - better understanding of DAV issues
  - recognition of existing interoperability problems
  - commitment to move forward
  - need to move quickly

Cambridge Meeting Summary

- Held September 16, 1996, at MIT Faculty Club, Cambridge, Massachusetts (Boston)
- Presentations by Yaron Goland (Microsoft), Jim Whitehead (UC Irvine), David Durand (Boston University) on requirements for distributed authoring and versioning
- Discussion of draft requirements documents

Cambridge Meeting Summary

- Meeting Oucomes:
  - General agreement on DAV requirements
  - Ready to start work on protocol specification document
    - Identified an editor (Del Jensen, Novell), and authors (Yaron Goland, Microsoft), Jim Whitehead (UC Irvine)
  - Still need to move quickly

Palo Alto Meeting Summary

- Held November 14-15, at Xerox PARC, Palo Alto, California (SF Bay Area)
- Presentations by Kenji Ota (NTT Labs) and Yaron Goland (Microsoft) on their approaches to distributed authoring and versioning
- Jim Cunningham and Asad Faizi, Netscape, circulated a draft protocol spec.

Palo Alto Meeting Summary

- Meeting Outcomes:
  - Reached rough consensus on many design issues (use of methods, don't develop a new set of core attributes, versions of a resource should be addressable, variants can be versioned)
  - Agreement to work on only a single protocol specification draft
  - Pursue sponsorship by IETF and W3C
- Keep working quickly

Current Work

- Requirements Document
    - Merge current distributed authoring requirements and distributed versioning requirements into a single document
    - Editor: David Durand, Boston University
    - Initial draft, January 1997
    - Submission as Informational RFC, May 1997

Current Work (cont'd)

- Protocol Specification
  - Incorporate key ideas from all drafts (Ota/Takahashi, Cunningham/Faizi, Goland/Whitehead)
  - Author's retreat 3rd week December
  - Editor: Del Jensen, Novel
  - Final draft, March 1997
  - Submission as Proposed Standard RFC, June 1997

Current Work (cont'd)

- Scenarios document
  - Gather scenarios of usage of distributed authoring and versioning technology as a santify check for requirements, protocol specification
  - Editor: Ora Lassila, Nokia
  - Submission as Informational RFC, February 1997

Current Work

- Sponsorship by IETF
  - In-progress
  - Have a draft working group charter, have applied to be an IETF WG
  - Discussed with Application Area Directors at San Jose IETF Meeting

Upcoming DAV Events

- WEBDAV BOF at San Jose IETF Meeting
  - Wednesday, December 11, morning session
- WEBDAV Working Group Meeting
  - January 27-28,1997, U.C. Irvine
  - details on mailing list and home page

Getting Involved

How can you become more involved in the WEBDAV Working Group?

- Join the mailing list (*w3c-dist-auth@w3.org*)
- Send message with subject "subscribe" to *w3c-dist-auth-request@w3.org*

Attend a working group meeting

Plan on developing an implementation of the protocol specification

Other ideas? Let me know!

Begin Editing Requirements

- **Source Retrieval.** The source of any given resource should be retrievable via HTTP.
- **Notification of Intention to Edit.** It should be possible to notify the HTTP server that a resource is about to be edited by a given person. It should be possible to query the HTTP server for the list of people who have notified the server of their intent to edit a resource.

Locking Requirements

□ **Write Locks.** It should be possible to restrict modification of a resource to a specific person, or list of persons. It should be possible to set single or multi-person write locks with a single action.

□ **No-Modify Locks.** It should be possible to indicate to the HTTP server that the contents of an resource should not be modified until the no-modify lock is released. It should be possible to assign a no-modify lock to a single person or a list of persons with a single action.

Locking (cont'd)

- **Read Locks.** It should be possible to restrict the ability to read a resource to a specific person, or list of persons. It should be possible to set single or multi-person read locks with a single action.

Locking (cont'd)

- **Lock Query.** It should be possible to query for whether a given resource has any active modification restrictions, and if so, who currently has modification permission.
- **Independence of locks.** It should be possible to lock a resource without re-reading the resource, and without committing to editing a resource.

Locking (cont'd)

- **Multi-Resource Locking.** It should be possible to take out a write or read lock on multiple resources in the same action, and this locking operation must be atomic across these resources.

- **Partial-Resource Locking.** It should be possible to take out a write or a read lock on subsections of a resource.

Meta Data Requirements

- **Relationships**. It should be possible to create, query and delete typed relationships between resources of *any media type*.
- **Attributes**. It should be possible to create, modify, query, read and delete arbitrary attributes on resources of *any media type*.

Container/Directory Requirements

- **List URL Hierarchy Level.** A listing of all resources, along with their media type, and last modified date, which are located at a specific URL hierarchy level in an http URL scheme should be accessible via HTTP, so long as this operation is meaningful.

- **Make URL Hierarchy Level.** It should be possible to create a new URL hierarchy level in an http URL scheme.

Partial Write Requirement

Partial Write. After editing a resource, it should be possible to only write the changes to an resource, rather than retransmitting the entire resource.

Copy/Move Requirements

- **Copy.** It should be possible to make a byte-for-byte duplicate of a resource without a client loading, then resaving the resource. This copy should leave an audit trail.
- **Move/Rename.** It should be possible to change the URL of an resource without a client loading, then resaving the resource under a different name.

Versioning Requirements

- **Check-out/Check-in**. It should be possible to check-out, and then check-in a resource.
- **Comments**. It should be possible to assign comments to a check-out or check-in.
- **Addressability**. All versions of a resource are themselves resources, and are individually addressable.

Versioning Requirements

- History. It should be possible to retrieve, in a single resource, a description of the predecessor and successor relationships between versions of the same resource.
- Style-freedom. Versioning should be kept free of assumptions concerning the versioning style (e.g. RCS-like, CVS-like).