Practical WebDAV

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About me

Professional:

- 1996-2006: computer science at Utrecht University
- 2004-2006: MSc thesis: NixOS
- 2005-present: coreteam `gpl-violations.org`
- 2006-present: board member of NLUUG (`http://www.nluug.nl/`)
- 2006-present: Chief Random Projects at Loohuis Consulting

A word from our sponsors: Loohuis Consulting

- specialized hosting
- web development (AJAX and other buzzwords)
- GPL license compliance
- UPnP security
- router/embedded security advice

More info: `http://www.loohuis-consulting.nl/`

Background for this talk

Some people for whom we took over for hosting needed “FTP” to share files with their customers.

We did not want to do FTP:

- more complex when you don't want to hand out shell accounts
- hard to get people to use SFTP
- yet another service running

Alternatives:

- CIFS
- NFS
- WebDAV

We chose WebDAV:

- leverage Apache access control
- fiddle with custom back ends :-)

WebDAV History

WebDAV officially stands for "Web-based Distributed Authoring and Versioning".

Started in 1996 to make WWW more collaborative.

- distributed authoring
- versioning

Deemed to complex, so focus was on "distributed authoring": storage!

Versioning came with the Delta-V extension but is not used in practice (yet).

Other applications are based on WebDAV:

- CalDAV
- GroupDAV

WebDAV in practical use

Despite being stripped down and with the original design goals overtaken by other technologies it is used quite often:

- calendaring services with CalDAV (Apple, Google, Zimbra, . . .)
- Subversion (just when using http, although WebDAV will be replaced soon)
- Adobe products (Dreamweaver, others)
- “webdisk” (XS4ALL, Apple, Loohuis Consulting, . . .)

Resources & properties

Core concept in WebDAV: resources (just think URI)

Every resource has properties:

- live properties (enforced/determined by server)
- dead properties (passed “as is”)

Common properties are:

- file size
- modification date
- ...

Properties are transferred (retrieval and modification) in XML.

WebDAV HTTP methods

WebDAV is just an extension of HTTP.

Extra methods:

- PROPFIND : query properties of a resource
- PROPPATCH : adapt properties of a resource
- MKCOL : make a collection ("directory") for storing resources
- COPY : copy a resource to another URI
- MOVE : move a resource to another URI
- LOCK : lock a resource
- UNLOCK : unlock a resource

with extra status codes.

You will never see these if you just want WebDAV as storage, except when you debug, or write a server or client.

WebDAV in practice

Requirements for our setup:

- just storage (no fancy stuff)
- MacOS X and Windows XP support (and Linux for ourselves)
- “secure” (HTTPS)
- use Apache authentication

Server support

- mod_dav for Apache is great for "WebDAV as storage"
- for the rest: brew your own (specifications are open)

```
<Directory /home/dav/dav.example.org/dav>
  Dav On
  DavDepthInfinity Off
  AuthUserFile /etc/httpd/conf/.htusers
  AuthGroupFile /etc/httpd/conf/.htgroups
  AuthName "Experimental DAV facility"
  AuthType Basic
  Require group dav.example.org

  <LimitExcept OPTIONS>
    Require group dav.example.org
  </LimitExcept>
</Directory>
```

Client support: Unix

Support on Unix(-like) systems is pretty solid:

- cadaver (commandline)
- Nautilus (GNOME)
- KDE
- davfs2 (Linux)

Some quirks and breakage:

- having different access control in subdirectories is a problem
- WebDAV in recent Nautilus versions (at least on Fedora) has usability issues when using SSL
- davfs2 breaks sometimes

Client support: MacOS X

Support on OS X is pretty good:

- Finder

Some quirks and breakage:

- having different access control in subdirectories is a problem and might crash the Finder

Client support: Windows XP

Client support in Windows XP is “interesting”:

- Windows Explorer
- various commercial tools

Lots of breakage. Most important:

- in many versions it is assumed that / of a WebDAV URL is also WebDAV enabled. Now you can't give users their own piece of WebDAV inside a website.
- having different access control in subdirectories is a problem

Some other bugs are remedied by a patch you have to install manually.

Client support: Windows Vista

You thought XP was hard?

Important: install an update from Microsoft to get it to work at all properly

- Windows Explorer
- various commercial tools (some just in 32 bit mode)

Bugs and breakage:

- same as Windows XP
- self signed certificates need a lot of extra work (but this is understandable)

And: some bugs that were fixed in XP and Vista have reappeared in Windows 7.

Client support: others

- Adobe Dreamweaver, other Adobe products
- OpenOffice.org (but suffers from some horrible bugs, depending on the version)
- some iPhone applications
- Subversion (client)

Results

It works with all systems we want, but:

- users sometimes have to install a patch (XP, Vista)
- giving individual users restricted access to certain parts of a webtree means configuration juggling

All in all: we're quite content with it and it has worked well for us and for our customers.

Advanced WebDAV

Many people think WebDAV is just “FTP over the web”, but WebDAV can be more than just storage!

Properties can be arbitrary:

- file size
- modification date
- colour
- flavour
- rotation speed
- ...

Clients hardly ever use custom properties, since there is no server support. Servers don’t support it, because few clients use custom properties.

Advanced server/clients

There are some extensions to WebDAV for some servers and clients.

Apache:

- "executable" for making scripts executable. Never use this!

In Windows clients some extra (dead) properties are used:

- Win32CreationTime, Win32LastAccessTime, Win32LastModifiedTime, Win32FileAttributes

In OpenOffice.org some extra (dead) properties are used:

- TargetURL, IsHidden, IsVolume, IsRemote, IsRemoveable, IsFloppy, IsCompactDisc, ...

But: no server support in mod_dav, so pretty useless for me.

My future research

Loohuis Consulting has a CMS called Liquid (LAMP architecture). We want to add WebDAV support for:

- mass file uploads (photo gallery)
- direct editing of content (content, Javascript, CSS) with Dreamweaver
- desktop integration

This is still in very early alpha stage.

Links & more information

- `http://www.webdav.org/` - WebDAV
- `http://www.greenbytes.de/tech/webdav/webdav-redirector-list.html` - known bugs in WebDAV on Windows
- `http://www.hackvalue.nl/` - Loohuis Consulting company blog, will be updated with more WebDAV soon