WebDAV

The good, the bad and the evil

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About me

- Tobias Schlitt <toby@php.net>
- PHP since 2001
- Freelancing consultant
- Qualified IT Specialist
- Studying CS at TU Dortmund

  (expect to finish this year)
- OSS addicted
  - PHP
  - eZ Components
  - PHPUnit

Agenda

Outline

HTTP

- Network protocol driving the web
- Current version: 1.1
- RFC 2616 (June 1999)

  `http://tools.ietf.org/html/rfc2616`
- Originlally invented by Sir Tim Berners-Lee
- Client / server based
- Stateless communication
- Defines
  - Request / response
  - Headers / body
  - Formats / actions

Figure: Tim Berners-Lee [Dan]

WebDAV

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WebDAV

... allows your users to edit web content easily.

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- GET
- HEAD
- POST
- PUT
- DELETE
- TRACE
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WebDAV

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- PROPPATCH
- MKCOL
- COPY
- MOVE
- LOCK
- UNLOCK

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Significant methods

Not all methods are significant for implementing a WebDAV server.

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Request / response bodies

HTTP

- Request body mostly not significant
- Only PUT method needs body (to be stored)
- Response body usually content to deliver (unspecified)
- Error responses may contain arbitrary content

Request / response bodies

WebDAV

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- Many methods require XML bodies

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- MOVE (optional)
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Response

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- PROPPATCH
- LOCK
- Potentially others (multi-status)

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Client-specific: Dead properties

- May contain arbitrary data
- Must reside in their own namespace
- XML representation favored

Outline

Development challenges

- Server development in general
- WebDAV RFCs are a BBOM
    - Unstructured
    - Ambiguous
    - Design fails
- Misbehaving clients
    - Ignore the specification
    - Different interpretations of RFCs
    - Proprietary BS
- Exchangeable back ends

Figure: Big Ball Of Mud [FY99]

Outline - Development challenges

COPY / MOVE methods

Errors on COPY

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MOVE errors

“[...] after detecting the error, the move operation SHOULD try to finish as much of the original move as possible [...]” [YG99]

The `If` header

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Apply operation only if ...

- ... all conditions are met
- ... none of the conditions is met

If header EBNF

```
If            = "If" ":" ( 1*No-tag-list | 1*Tagged-list)
No-tag-list   = List
Tagged-list   = Resource 1*List
Resource      = Coded-URL
List          = "(" 1*(["Not"](State-token | "[" entity-tag
    "]")) ")"
State-token   = Coded-URL
Coded-URL     = "<" absoluteURI ">"
```

The If header

The If header

Makes operations conditional.

Can contain

- lock tokens
- entity tags

No-tag list If header

```
If: (<locktoken:a-write-lock-token> ["I am an ETag"]) (["I am
    another ETag"])
```

The `If` header

The If header

Makes operations conditional.

Conditions can apply to

- single resources
- sets of resources
- all affected resources

Negated tagged list `If` header

```
<http://example.com/resource1> (<locktoken:a-write-lock-token
    > [W/"A weak ETag"]) (Not ["strong ETag"])
```

The `If` header

The If header

Makes operations conditional.

- Required own parser implementation
- Parser is about 150 LOC

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- Timeout refresh on every lock use (successful or not)
  (Fixed in RCF 4918)
- Not specified how to associate principles with lock tokens
- Lock-Null-Resources
  (Partly fixed in RFC 4918)
  - Do not behave like real resources
  - Must vanish when the lock is released
  - A collection can be created on them

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Konqueror / Nautilus

- Konqueror (KDE)
  - Does not decode URLs properly
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- Konqueror (KDE)
  - Does not decode URLs properly
  - Requires Apache like error messages for 404
- Nautilus (Gnome)
  - Cannot cope with `charset="..."` info in MIME types

Windows / InternetExplorer

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  - Loaded depending on how you initialize connection
  - Transparently switched occasionally

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  - Loaded depending on how you initialize connection
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- Requires custom header `MS-Author-Via` on every response
- Requires custom namespaces set on live properties
  - Requires special namespace shortcut to be used (sic!)
  - Requires different shortcuts for `DAV:` namespace

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Figure: WTF? [Nad99]

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Back end flexibility

- Exchangeable back end
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  - Memory (testing)
  - SQL Database?
  - Subversion?

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- Independent of client issues
- Protocol enhancements back end independent
- Easy implementation

Outline

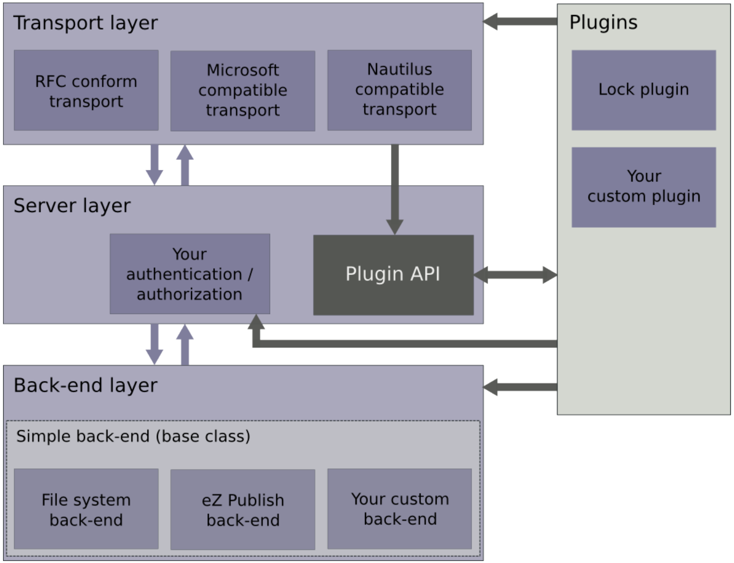
eZ Components

- General purpose component library for PHP 5.1+
- Open source and GPL friendly (New BSD license)
- Vital open source community
- Highly tested
- Extensive docs
- Professional support available

The Webdav component

- General purpose WebDAV server
- Easy integration and customization
- Work around client issues

eZ Webdav architecture



Setup a simple WebDAV server

```php
$server = ezcWebdavServer::getInstance();
$backend = new ezcWebdavFileBackend(
    dirname( __FILE__ ) . '/backend'
);

$server->handle( $backend );
```

WebDAV server with locking

```php
require_once 'custom_lock_auth.php';

$server = ezcWebdavServer::getInstance();

$server->auth = new myCustomLockAuth(
    // Some configuration directory here
    dirname( __FILE__ ) . '/tokens.php'
);

$server->pluginRegistry->registerPlugin(
    new ezcWebdavLockPluginConfiguration()
);

$backend = new ezcWebdavFileBackend(
    // Your WebDAV directory here
    dirname( __FILE__ ) . '/backend'
);

$server->handle( $backend );
```

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Q/A

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- Did the session satisfy your needs?
- Contact me: Tobias Schlitt <toby@php.net>
- Enjoy the rest of the conference!

Outline

- Enrique Dans, *Tim berners-lee*, http://en.wikipedia.org/wiki/File:Tim_Berners-Lee_April_2009.jpg.
- Brian Foote and Joseph Yoder, *Big ball of mud*, http://www.laputan.org/mud/mud.html#BigBallOfMud, 1999.
- Andreas Nadler, *Ich will andere geschenke ...*, http://www.flickr.com/photos/tobi_digital/3145179282/, 1999.
- A. Faizi S. Carter D. Jensen Y. Goland, E. Whitehead, *Http extensions for distributed authoring – webdav*, IETF, Network Working Group, 1999.