Web development with PHP

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Speaker

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  - International PHP Conference, WebtechCon, FrOSCon, ...

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  - PHP Magazine, Linux Magazine, ...

General

- Please ask!
  - Whenever a question occurs
  - How stupid you think the question might be

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  - How stupid you think the question might be
- Slides will be online later today on
  - `http://udo.edu/.../php.zip`

Who uses PHP?

- Do you?
  - What do you do with PHP?
  - Do you like / hate PHP?
  - Did you already use PHP 4 (maybe even 3)?

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- Do you?
  - What do you do with PHP?
  - Do you like / hate PHP?
  - Did you already use PHP 4 (maybe even 3)?
- In the “real” world:
  - Yahoo, Facebook, StudiVZ, Wikipedia, . . .
  - Siemens, T-Online, . . .
  - Add $bigCompany here

What is PHP?

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    - Third popular language (TIOBE) [40]

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  - CLI [20]
  - GTK [22]
  - Embedded [?]

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  - CLI [20]
  - GTK [22]
  - Embedded [?]
- Portable

Use Case: StudiVZ

- 550 High-End-Server
- 2,200 Processor Cores
- 7,000 GB RAM
- Peek 4,300 Mbit / sec.
- Peek 150,000 database queries / sec.
- Statistics estimated in June 2009

Open Source

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  - Professionals
    - Zend (Zend Engine 2)
    - IBM (Project Zero)
    - Yahoo! (APC)
    - eZ Systems (Xdebug)
    - ...

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    - ...
  - Volunteers
    - Extension developers
    - Testers
    - Documentors (12 languages)
    - User-space libraries
    - (PEAR, Zend Framework, eZ Components,...)

What comes next?

History

The past

- PHP/FI (Personal Homepage Tools / Form Interpreter)

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- PHP 4
  - Merges parts of PHPlib (Sessions)
  - Very simple object orientation

The present

- PHP 5 / Zend Engine 2

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  - Important features
    - Better XML handling
    - Database abstraction layer
    - Major speed improvements

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- PHP 5 has actually been released four years ago.
- Support for PHP 4 has officially been dropped end 2007.

The future

- PHP 5.3
  - Namespaces [25]
  - Late static binding [24]
  - Closures / lambda functions [19]
  - Goto (sic!)

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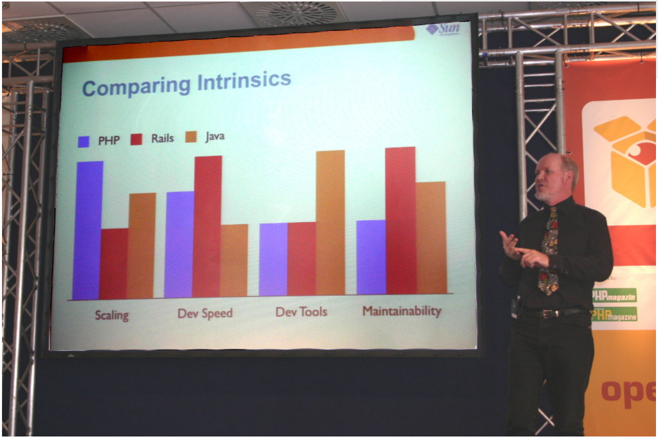
  - Namespaces [25]
  - Late static binding [24]
  - Closures / lambda functions [19]
  - Goto (sic!)
- PHP 6 / PHP 5.4 (no promises!)
  - Native Unicode support
  - Traits
  - Cleanup of deprecated features
    - Register globals
    - Safe mode
    - ...

What comes next?

Architecture

Tim Bray (Sun):


Sun
Comparing Intrinsics
PHP
Rails
Java
Scaling
Dev Speed
Dev Tools
Maintainability
PHPmagazin
PHPmagazine
ope

Language properties (1/2)

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  - (Aspect oriented)
- Freedom vs. Clarity

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    - ...
  - Optional extensions shipped with the core
  - Additional extensions installable via PECL [16]

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  - Databases

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- Threadsafe environment
    - No threading in language

Installation

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- `http://www.php.net/manual/en/install.php`

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- Unified installation infrastructure for PHP [13]
  - Manage
    - PHP code packages
    - C-Extensions to PHP
  - Channel support
    - Provide your own code via PEAR Installer
  - Application setup facilities
    - Pre- / post install scripts
    - Shipped with PHP since 4.3.0

Documentation

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  - English version very up to date
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- Magazines
  - PHP Magazin (`http://it-republik.de/php/`)
  - php—architect (`http://www.phparch.com/`)
  - …

What comes next?

Request handling

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- Request data is available in *superglobal* arrays [28]
  - `$_GET`

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  - $_GET
  - $_POST
  - $_COOKIE
  - $_FILES
  - ($_SERVER / $_ENV)

Simple form

```
<?php
if ( ( isset( $_POST['submit'] ) ) &&
     ( $_POST['Login'] === 'Webtech' ) &&
     ( $_POST['Password'] === '2009' ) ) {
    $status = 'You are logged in now.';
} else {
    $status = 'Login failed.';
}
?>
<?xml version="1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head><title>Simple form example</title></head>
<body>
  <h1>Simple form example</h1>
  <h2><?php echo htmlspecialchars( $status, ENT_QUOTES, 'UTF-8' ); ?></h2>
  <form method="post">
  <fieldset>
    <legend>Simple login form</legend>
    <label for="login">Username</label>
      <input type="text" id="login" name="Login" />
    <label for="password">Password</label>
      <input type="password" id="password" name="Password" />
    <button type="submit" name="submit">Login</button>
  </fieldset>
  </form>
</body>
</html>
```

Session handling

- Session data in superglobal array
    - `$_SESSION`

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  - $_SESSION
- Data stored serialized in:
  - File system (standard)
  - User extendable
    - Memcache (-server)
    - Database

Session handling

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  - `$_SESSION`
- Data stored serialized in:
  - File system (standard)
  - User extendable
    - Memcache (-server)
    - Database
- Session-user-association:
  - Trans-ID
  - Cookie

Start a session

```php
<?php

session_start();

// Handle login
if ( ( isset( $_POST['submit'] ) ) &&
     ( $_POST['Login'] === 'Webtech' ) &&
     ( $_POST['Password'] === '2008' ) )
{
    $_SESSION['loggedin'] = true;
}

// ...

// Check if user is logged in
if ( isset( $_SESSION['loggedin'] ) &&
     ( $_SESSION['loggedin'] === true ) )
{
    echo 'You␣are␣logged␣in.';
}
else
{
    echo 'You␣are␣not␣logged␣in.';
}

?>
```

OOP Features

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- Classes
  - Methods
  - Attributes
  - Constants
  - Constructor / Destructor
  - Scopes

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  - Constants
  - Constructor / Destructor
  - Scopes
- Interfaces
- Abstract classes
- Static
- Namespaces

OOP Example

```php
<?php
namespace vorgon\poetry;

class DeepThought
{
    const answer = "42";

    protected $question;

    public function __construct()
    {
        $this->question = "The answer to Life, the universe and everything else?";
    }

    public function getResult( $input )
    {
        if ( $this->question == $input )
        {
            return self::answer;
        }
    }
}

?>
```

Specialities

- Autoloading

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- Autoloading
- Type hints

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- Autoloading
- Type hints
- Interceptors

What comes next?

Databases

Supported databases

- Mysql
- Oracle
- PostgreSQL
- Sqlite
- Firebird
- MSSQL
- DB2
- CouchDB
- ... nearly any other DBMS you can find.

PDO

- PDO = PHP Data Objects [26]

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- Object oriented interface

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- Object oriented interface
- Standardised API (kind of)
  - No SQL abstraction
  - No automatic data persistence

Database abstraction

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- SQL abstraction
  - eZ Database [7]
  - PEAR MDB2 [15]

Database abstraction

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- SQL abstraction
  - eZ Database [7]
  - PEAR MDB2 [15]
- "Active record"-like implementations
  - PEAR DB_DataObject [14] (PHP 4)
  - eZ PersistentObject [8] (PHP 5)
  - Zend ActiveRecord [42]
  - Doctrine [4]

Templating

PHP is a templating language

- Original idea for PHP

PHP is a templating language

- Original idea for PHP
- Problems
  - PHP got too powerful
  - User provided templates
  - No automatic output escaping
  - Designers don't want to write real code

Template languages

- Restricted functionality

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- Automatic output escaping

Template languages

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- Simple syntax

Template languages

- Restricted functionality
- Automatic output escaping
- Simple syntax
- Highly specialized template languages written in PHP
  - Smarty [39]
  - eZ Template [9]
  - PHPTAL [35]
  - . . .

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Security

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- ext/filter for general input filtering
  - Global prefiltering

Common infrastructure

Related technology (1/2)

- Bytecode caches
  - APC (open source) [2]
  - Zend Platform (commercial) [43]

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  - Different APIs, with different memory / read characteristics
- JSON [23]
  - Integrated
- Webservices
  - XML-RPC [30]
  - SOAP [27]
  - REST

Related technology (2/2)

- Development tools
  - IDEs (Netbeans [12], Eclipse PDT [5], . . .)
  - Standalone Debuggers (XDebug [41], pecl/DTrace)
  - Profiler (XDebug [41])

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- Quality Assurance tools
  - Documentation generation (phpDocumentor [33])
  - Build tools (phing [17])
  - Unit testing (PHPUnit [37])
  - Acceptance testing (Selenium [38])
  - Continuous Integration (phpUnderControl [36], Arbit [3], Hudson [10])
  - Static code analysis tools (phpCodeSniffer [31], pDepend [21], phploc [34], phpcpd [32], . . .)

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- (Rails like) Frameworks

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  - C-like syntax
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  - PHP gives you freedom
- PHP scales
  - Development wise
  - Performance wise
  - Customer wise

Thank you for listening

- Any questions?
  - Kore Nordmann <kore@php.net> / @koredn
  - Tobias Schlitt <toby@php.net> / @tobySen
  - Jakob Westhoff <jakob@php.net> / @jakobwesthoff
- We hope you enjoyed the session

References I

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