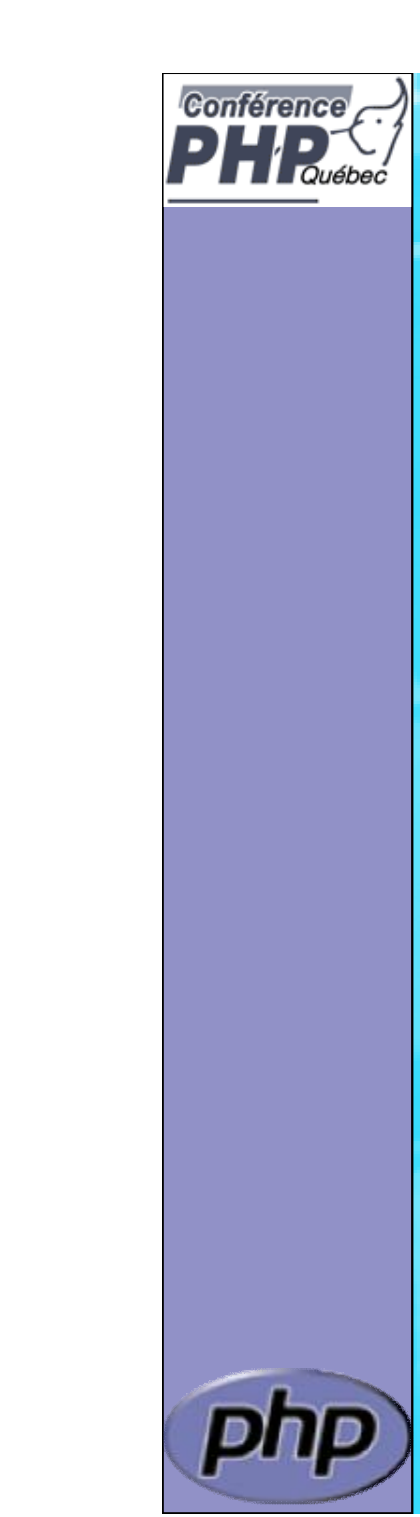

Worst PHP Practice

Marcus Börger
Johannes Schlüter

PHP Quebec 09: http://talks.somabo.de/200903c.pdf | .pps

Topics

- Security
- Overdesign
- Spagetthi code
- DIY – Do It Yourself
- Utilize available Tools
- Micro Optimizations
- References
- Do everything with Objects
- Include vs. Require vs _once
- Provide a Style Guide
- Use with Caution

Security

- M Adress security once the application is ready
- M No hacker will ever care for my application
- M I do not have security issues

- I Since hackers automaticaly scan, they will find you

- J Take care of security right from the beginning
  - J Security should and will influence:
    - J Your overall design
    - J Your development and deployment process


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php

Overdesign

- M Always plan for everything
- I Limit yourself to what you and your customer want
- I Do not fear restarting development
- J The more complex your design gets:
  - J The more complex your code gets
  - J The more bugs you have
  - J The more the development will cost
  - J The more likely you are to miserably fail
- J PHP is not: Java, C++, Python, Ruby on Rails

Spaghetti code

M This code just needs a little bit more tweaking

I Modularize / Componentize your code

J Every day code can put in base repository

J Not everything you use twice belongs there

DIY – Do It Yourself

- **M** Implementing everything yourself
  - **M** Waste of time
    - **M** Development
    - **M** Testing
    - **M** Documenting
    - **M** Maintenance
  - **M** Creating unnecessary bugs

- **J** Prefer NIH
  - **J** Existing code should be
    - **J** Well developed
    - **J** Tested
    - **J** Documented
    - **J** Maintained
  - **J** Have very few bugs if at all

Utilize available Tools

M **Designing, Testing, Versioning, Documenting . . .**

… That all takes far too much time!

I **Software design lets you capture errors early**

I **Testing obviously lets you find bugs**

I **Versioning helps you track down issues**

I **Documenting helps everyone understand the code**

J **Familiarize yourself with available tools**

- J **Design: UML might be overkill, but . . .**
- J **Testing: Run-tests, SimpleTest, PHPUnit, . . .**
- J **Versioning: SVN, HG, GIT**

Micro Optimizations

- **M** Always write optimized code

- **I** Optimized code usually is harder to maintain
- **I** Harder to maintain code is often more error prone
- **I** Writing optimized code takes longer

- **J** Follow the 80 : 20 rule
  - **J** 80% of the time is spent in 20% code
  - **J** Optimizing the 80% by 20% gains: 4%
  - **J** Optimizing the 20% by 10% gains: 8%

  - **J** Use Profiling – System Profiling

References

- **Using references to optimize code**

- **References don’t do what you think they do**
- **Do not use references (avoid them like holy water)**

References

```php
function ConfigFramework(ARRAY $config) {
    // . . .
}

$config = array(...);

ConfigFramework($config);


class Application {
    function __construct($config) {
        $this->config = $config;
    }
}


$app = new Application($config);
```

References

```
function ConfigFramework(ARRAY $config) {
    // Expensive read function
}

$config = array(...);

ConfigFramework($config);
// This configure stuff is somehow slow

class Application {
    function __construct($config) {
        $this->config = $config;
    }
}


$app = new Application($config);
```

References

```php
function ConfigFramework(ARRAY &$config) {
    // Expensive read function
}

$config = array(...);

ConfigFramework($config);
// Should be faster now, no?

class Application {
    function __construct($config) {
        $this->config = $config;
    }
}


$app = new Application($config);
```

References

```
function ConfigFramework(ARRAY &$config) {
    // Expensive read function
}

$config = array(...);

ConfigFramework($config);
// Now $config is a reference

class Application {
    function __construct($config) {
        $this->config = $config;
    }
}

// And now the following is slow
$app = new Application($config);
```


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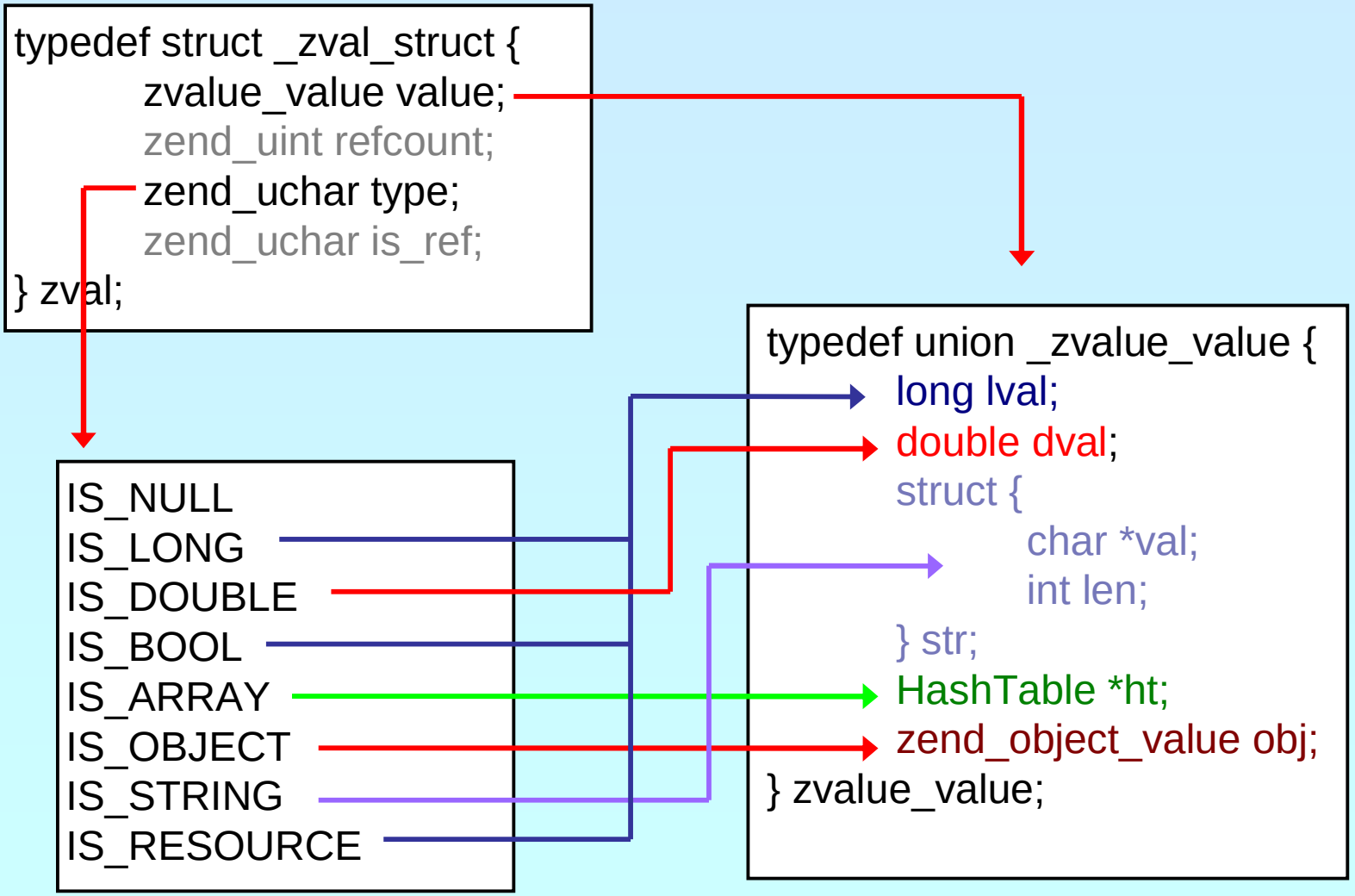
In PHP all values are zval's



In PHP all values are zval's

```
typedef struct _zval_struct {
        zvalue_value value;
        zend_uint refcount;
        zend_uchar type;
        zend_uchar is_ref;
} zval;
```

Userspace notion of "Reference"

0 == Not a reference

1 == Is a reference

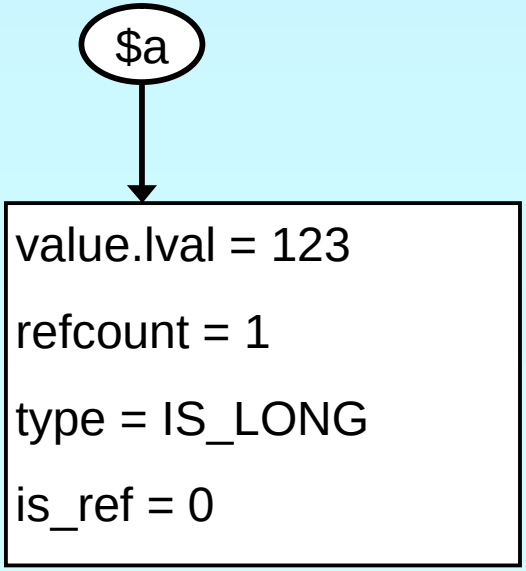
How many "labels" are associated with this zval?

Copy On Write

```
typedef struct _zval_struct {
        zvalue_value value;
        zend_uint refcount;
        zend_uchar type;
        zend_uchar is_ref;
} zval;
```

- Has a value of 0 (zero)
- zval shared by 1 or more labels
- If one label wants to make a change, it must leave other labels with the original value.

```
$a = 123;
```



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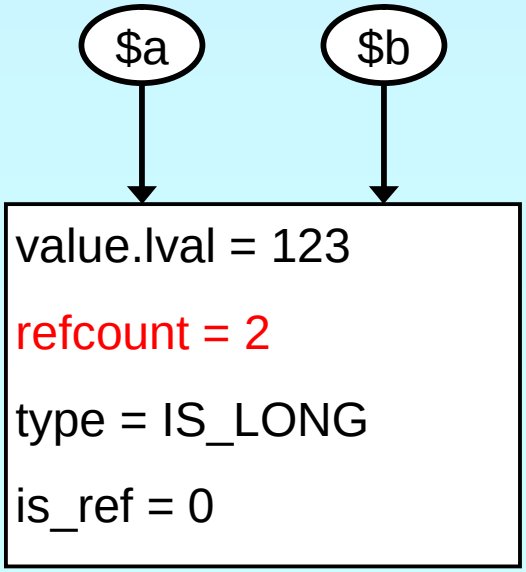
- Has a value of 0 (zero)
- zval shared by 1 or more labels
- If one label wants to make a change, it must leave other labels with the original value.

```
$a = 123;
$b = $a;
```



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typedef struct _zval_struct {
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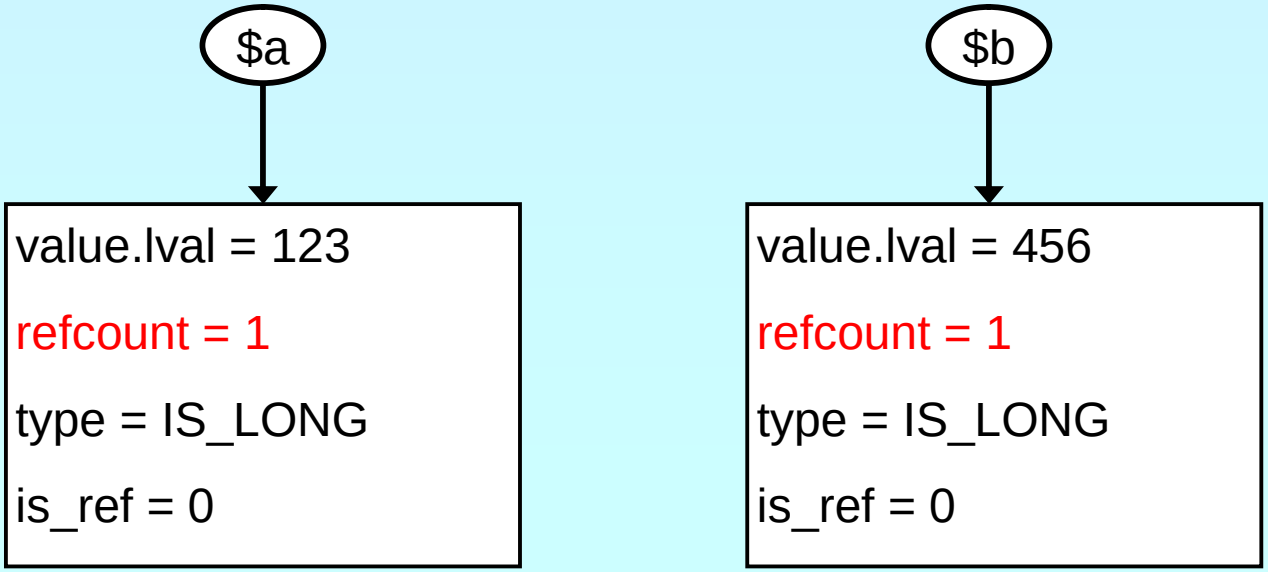
} zval;
```

- Has a value of 0 (zero)
- zval shared by 1 or more labels
- If one label wants to make a change, it must leave other labels with the original value.

```
$a = 123;
$b = $a;


$b = 456;
```

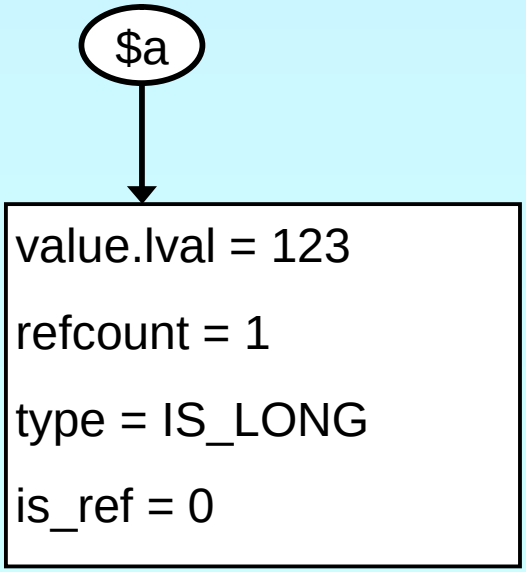


Full Reference

```
typedef struct _zval_struct {
        zvalue_value value;
        zend_uint refcount;
        zend_uchar type;
        zend_uchar is_ref;
} zval;
```

- Has a value of 1 (one)
- zval shared by 1 or more labels
- If one label wants to make a change, it does so, causing other labels to see the new value.

```
$a = 123;
```



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```

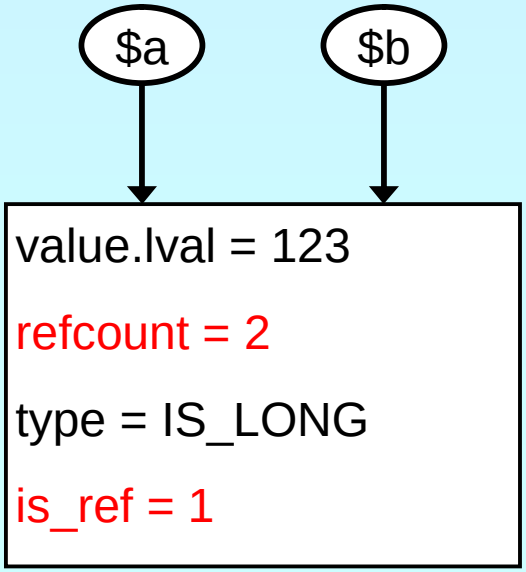

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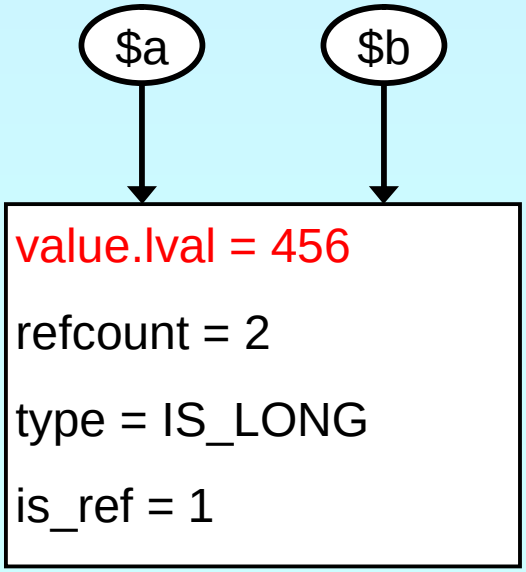

Do everything with Objects

- **M** Everything must be an object
- **I** PHP supports procedural code
- **J** When you use a singleton factory
  - **J** You could have used globals
- **J** An object that simply stores values
  - **J** Could simply be an array

Include vs. Require vs _once

M require_once is the safe and correct way - always

I There are four verisons for a reason

J include

J require

J include_once / require_once

J fpassthru()

M eval


It Is All About Style

Provide a Style Guide

- Provide actual coding rules (coding style)
- Provide useful error handling
- Always develop with E_STRICT + E_NOTICE on
- Use your logs
- Use .inc for includes + care for server config
- Use “ instead of ‘
- Do not constantly switch between HTML and PHP
- Do not use auto_prepend_file, auto_append_file
- Do not leave debugging in production
- Do we really need to mention register_globals?
- Magic quotes: Filter on input, escape output

Use with Caution

- $_REQUEST
- __get, __set, __isset, __unset
- __call, __callStatic
- __autoload
- @
- <?=

Reference

- Everything about PHP
  http://php.net
- These slides
  http://talks.somabo.de
- George Schlossnagle
  Advanced PHP Programming
- Andi Gutmans, Stig Bakken, Derick Rethans
  PHP 5 Power Programming