A first look at Zend Framework 3

Rob Allen ~ September 2015

What did ZF2 give us?

What's wrong with ZF2?

The PHP world has changed since 2012

So what's the ZF3 story?

The ZF3 story

- Components
- ZF2 => ZF3 means MVC improvements!
- PSR-7, Interoperability & Middleware

PHP 5.5

Components

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- Separate repositories

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- Separate evolution

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Components

- Separate repositories
- Separate evolution
- Documentation in repository
- All issues in the right place on GitHub
- More maintainers

ZF MVC framework

MVC improvements

- ZF2 is now a meta package

MVC improvements

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- Managed BC breaks

MVC improvements

- ZF2 is now a meta package
- Managed BC breaks
- Key component changes
    - `ServiceManager`
    - `EventManager`
    - `Hydrators`

PSR-7, Interoperability & Middleware

It's all about HTTP

Request:

```
{METHOD} {URI} HTTP/1.1
Header: value1,value2
Another-Header: value

Message body
```

Response:

```
HTTP/1.1 {STATUS_CODE} {REASON_PHRASE}
Header: value

Message body
```

Current PHP

Request:

- $_SERVER, $_GET, $_POST, $_COOKIE, $_FILES
- `apache_request_headers()`
- `php://input`

Response:

- `header()`
- `echo` (& `ob_*()` family)

PSR-7

It’s just some interfaces

- `RequestInterface` (& `ServerRequestInterface`)
- `ResponseInterface`
- `UriInterface`
- `UploadedFileInterface`

A quick aside

Key feature 1: Immutability

`Request`, `Response`, `Uri` & `UploadFile` are *immutable*

```
$uri = new Uri('https://api.joind.in/v2.1/events');
$uri = $uri->withQuery('?filter=upcoming');

$request = (new Request())
    ->withMethod('GET')
    ->withUri($uri)
    ->withHeader('Accept', 'application/json')
    ->withHeader('Authorization', 'Bearer 0873418d');
```

Key feature 2: Streams

Message bodies are *streams*

```
$body = new Stream();
$body->write(json_encode(['foo' => 'bar']));

$response = (new Response())
    ->withStatus(200, 'OK')
    ->withHeader('Content-Type', 'application/json')
    ->withHeader('Accept', 'application/json')
    ->withBody($body);
```

Diactoros

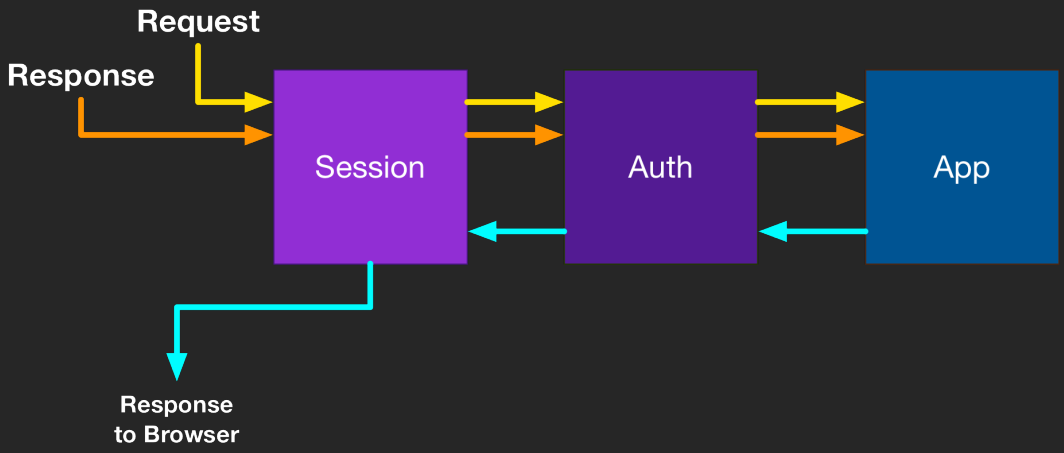
ZF’s PSR-7 implementation

Diactoros

- Complete PSR-7 implementation
- Specialised Responses: JSON, Empty & Redirect
- Used by Symfony for their PSR-7 bridge
- zend-psr7bridge: ZF3's PSR-7 to `Zend\Http` bridge

Middleware

Middleware



Middleware

```
function ($request, $response, callable $next = null)
{
    // do something before

    // call through to next middleware
    if ($next) {
        $response = $next($request, $response);
    }

    // do something with $response after

    return $response;
}
```

Writing middleware

Pattern:

- Optionally modify the received request and response
- Optionally invoke the next middleware
    - Optionally modify the returned response
- Return the response to the previous middleware.

Stratigility

ZF’s Middleware implementation

Stratigility

- Dispatches a stack of middleware
- Simple router built-in
- Middleware:
    - Any `callable`
    - `Zend\Stratigility\MiddlewareInterface`

```
public function __invoke(
    ServerRequestInterface $request,
    ResponseInterface $response,
    callable $out = null
) : ResponseInterface;
```

Next

```php
// invoke the next middleware
return $next($request, $response);

// or for errors
return $next($request, $response, $error);
```

ErrorMiddleware

- Stack error handling too!
- Handle failure gracefully outside of middleware stack

```
function ($error,
    ServerRequestInterface $request,
    ResponseInterface $response,
    callable $out
);
```

Also: `Zend\Stratigility\ErrorMiddlewareInterface`

Path segregation:

```
use Zend\Stratigility\MiddlewarePipe();
$app = new MiddlewarePipe();
$app->pipe($mw1);                   // always evaluate
$app->pipe('/blog', $blogMw);       // only if path matches
$app->pipe('/contact', $contactMw);
$app->pipe($outputMw);

$server = Server::createServer($app, …);
$server->listen();
```

Nesting Middleware

Compose middleware together based on path:

```
$blog = new MiddlewarePipe();
$blog->pipe('/post', $postMw);
$blog->pipe('/feed', $rssMw);
$blog->pipe('/', $listMw);

$app->pipe('/blog', $blog);

// matches:
//  - /blog
//  - /blog/feed
//  - /blog/post
```

Middleware wrappers

```
$app->pipe('/', $homepage);              // Static
$app->pipe('/customer', $zf2Middleware); // ZF2
$app->pipe('/products', $zf1Middleware); // ZF1
$app->pipe('/api', $apigility);          // Apigility
$app->pipe('/user', $userMiddleware);    // 3rd party
```

What about routing?

(& DI container…)

Expressive

ZF’s micro framework

Expressive

- Builds on Diactoros & Stratigility

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- Middleware!

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- Choose your own components
    - Router

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- Error handling

Agnostic

Router:

- Aura.Router, FastRoute or Zend\Mvc\Router

DI Container:

- Pimple, Aura.Di, Zend\ServiceManager or container-interop

Template:

- Plates, Twig or Zend\View

Hello world

```
use Zend\Expressive\AppFactory;

$app = AppFactory::create();

$app->get(
  '/hello/{name}',
  function ($request, $response, $next) {
    $name = htmlentities($request->getAttribute('name'));
    $response->write('<p>Hello, $name!</p>');
    return $next($request, $response);
  }
);

$app->run();
```

Middleware pipes

```
$app->pipe($seessionMiddleware);
$app->pipe($authMiddleware);
$app->get('/', $homepageMiddleware);
$app->pipe($auditMiddleware);

$app->run();
```

Named routes

3rd parameter:

```
$app->get('/books/:id', $getBookAction, 'book');
```

Build URI:

```
$url = $router->generateUri('edit', ['id' => 1]);
```

Views

Templates are instances of
`Zend\Expressive\Template\TemplateInterface`

```
$html = $templates->render('book/detail', [
    'layout' => 'master',
    'book' => $bookEntity,
]);

return new HtmlResponse($html);
```

Why Expressive?

- Performance
- Developer experience
- Reusable middleware

This is the ZF3 era

The ZF3 era

- Separate components
- ZF2 MVC with performance improvements
- Stratigility middleware foundation
- Expressive micro framework

Questions?

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Thank you!

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