

cjw NETWORK
Developers united in eZ Publish



Multiple Colors of Migration

— JULIA L. J. —

Presenters

- **Ekke** is a consultant with deep knowledge in eZ Publish 4 and 5, eZ Find / Apache Solr and with a faible for coming cutting edge web technologies. He is one of the organizers of the PHP Unconference since eight years.
- **Martin** is TODO
- **Donat** is owner of Webmanufaktur, a full service web agency in Switzerland. He works as projects manager, software architect and developer and likes thinking outside of the box. In the last year he has been involved in major pure eZ 5 projects.
- Members of CJW Network

Multiple Colors of Migration DOING

- There are still many eZ Publish legacy sites
- eZ Publish 5.4 / 2014.11 is supported until May 2019
- So there is a stable business base for the next 4 years
- And since one year in internet is seven years in real live, 28 years of best business!
- Why waiting? OK, we try to help you with some know how
- TODO <https://github.com/cjw-network/SummerCampBundle/raw/master/Resources/doc/learnings.pdf>
- TODO <https://github.com/cjw-network/SummerCampBundle>

Who is in the audience?

- Who is coming from the eZ World?
- Who is coming from the Symfony World?
- Who has realized eZ Publish 5 sites (productive)?
- Who has realized pure eZ Publish 5 sites (no legacy)?

Agenda

Things we would like to discuss:

- Good Practice
- ez View Cache vs. HTTP Cache
- Debugging
- Pitfalls
- MultiSite Setup



Good Practice

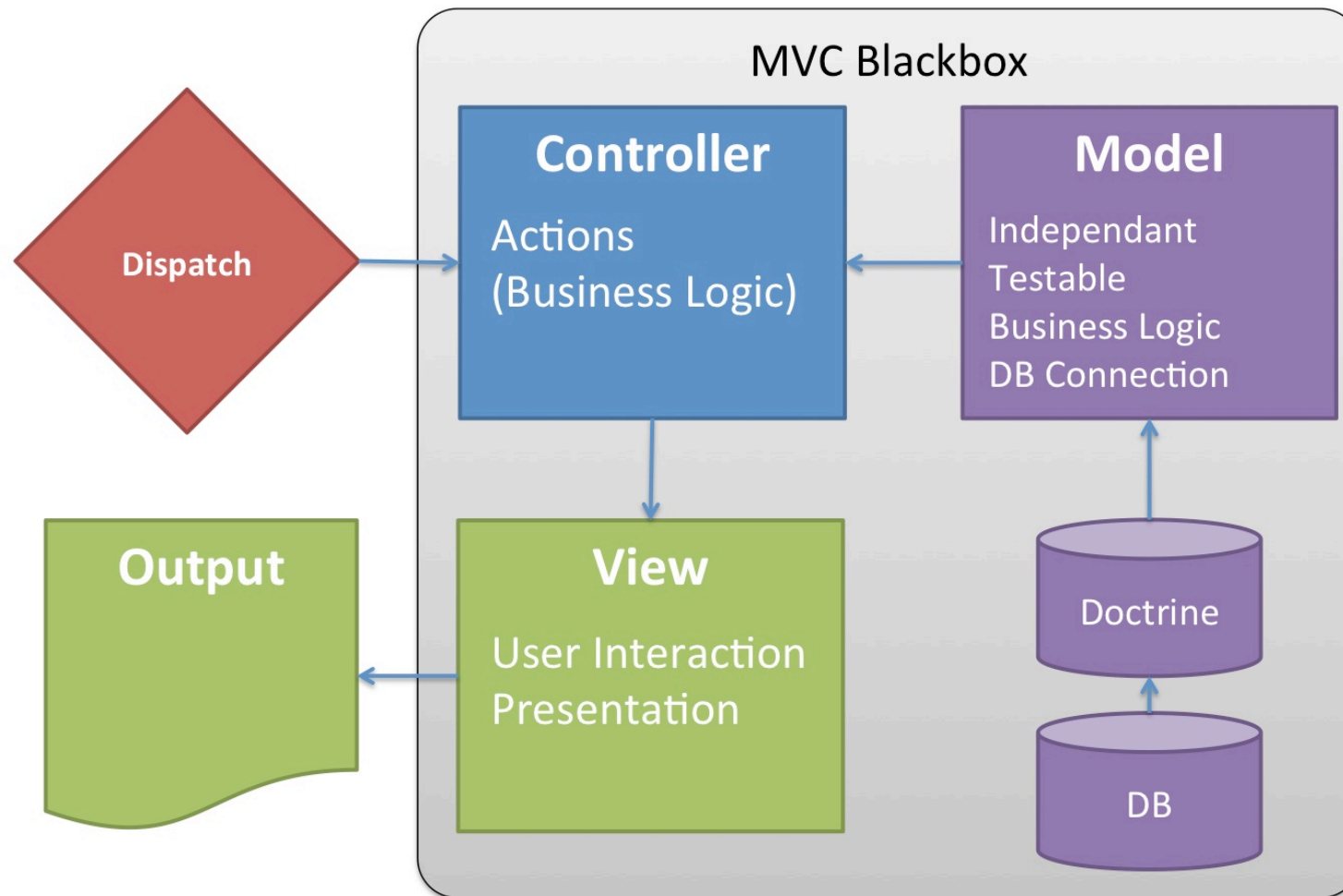
Team up with a Symfony Crack

- To be honest: as eZ 4 developers, we are complete novices in eZ 5
- It's easier for a Symfony Crack to learn eZ than other way round
- Symfony community is hungry for a CMS, so watch out for new competition
- But @Symfony cracks: It's not easy: an eZ Publish and CMS expert will reduce your risk
- And will make your content architecture better and more maintainable

Think in MVC

- A radical different thinking
- eZ 4 mangled all together in the TPL -> the view implemented the logic (fetch)
- Symfony enforces a clean separation, from routing to the controller to the rendering of the view

MVC Blackbox



Think in Bundles

What is a bundle?

- Use at least one bundle per site
- Split your application in different bundles (site specific, functional, ...)
- Reuse your code: create and maintain with love a Base Bundle with general functions
- Refactor it frequently as you learn and the product evolves
- Creating bundles is easy, don't work in the DemoBundle ;-)

```
$ php ezipublish/console generate:bundle
```

BASH

Organize your config files

The standard eZ installation is a mess...

... and the DemoBundle is only slowly becoming a source of good practice

How do YOU handle this?

- keep config in `ezpublish/config` as general as possible
- it should merely describe your environment, not the application
- move all site/function specific settings to the bundle

Keep ezpublish.yml small (1)

ezpublish/config/ezpublish.yml

```
imports:
  - {resource: "@CjwExampleBundle/Resources/config/ezpublish.yml"}
ezpublish:
  siteaccess:
    default_siteaccess:%cjw.site%_user
    list:
    groups:
      default_group:
    match:
      \Cjw\MultiSiteBundle\Matcher\MapHost:
        www.%cjw.site%.ch: %cjw.site%_user
        admin.%cjw.site%.ch: %cjw.site%_admin
  repositories:
    default_repository:
      engine: legacy
      connection: default_connection
```

YML

Keep ezpublish.yml small (2)

YML

```
system:
  default_group:
    repository: default_repository
    var_dir: var/%cjw.site%
    languages:
      - ger-DE
  %cjw.site%_user:
    legacy_mode: false
    languages:
      - ger-DE
    content:
      view_cache: true
      ttl_cache: true
      default_ttl: 3600
  %cjw.site%_admin:
    legacy_mode: true
    ...
stash:
  ...

#ezsummer
```

Keep ezpublish.yml small (3)

Can even be shorter - get inspiration from
<https://github.com/lolautruche/metalfrance>

Extras:

- use parameters
- standardize site access names, groups, repository names

`ezpublish/config/parameters.yml`

```
parameters:
```

```
...
```

```
cjw.site: frb
```

YML

Note: prepending configuration does not work well with parameters

Config Files in Bundle

We keep them in a separate directory and name them as in good old eZ...

ExampleBundle

- └ Resources

- └ config

- └ ezpublish

- image.yml

- override.yml

- ezpublish.yml

<-- includes files from ./ezpublish

- parameters.yml

- routing.yml

- services.yml

Controllers

After several tries, we ended up with...

- Basically one controller per full view
- Separate controllers for navigation etc.
- Consider caching (TTL, X-Location Header)
- **Recommended: Move business logic to separate model**
- Retrieve all needed data (location, children, ...)
- Prepare the data for easy processing in the templates

Ways to Fetch Content

- `LocationService::loadLocation($id) --> location`
- `ContentService::loadContent($id) --> content`
- `SearchService::findContent($query) --> list of content`
- `SearchService::findLocations($query) --> list of location`
- `LocationService::loadLocationChildren($location) --> list of location`
- Legacy fetch functions

SearchService::findContent()

The only `SearchService` function you will find in `DemoBundle` ...

- returns full `content` objects with ALL attributes in ALL languages
- does not work ~~well~~ with multiple locations
- no `as_objects` flag as in eZ 4
- scales very badly
- fetching a content tree with 116 locations took 30 seconds
- most of the time is spent in manipulating the SQL result in PHP
- Another test: 24 hits, PHP array 44'880 rows with 39 elements each, highly redundant
- <http://share.ez.no/blogs/donat-fritschy/searchservice-performance>

SearchService::findLocations()

Available from 2014.05 / 5.3 only

Roughly equivalent to good old `fetch('content', 'list')`

- returns `location` objects with `contentInfo` only
- usually sufficient for building a menu
- use `ContentService::loadContent()` to fetch whole object
- Performance lower than legacy, but acceptable
- fetching a content tree with 116 locations took < 1 second
- scales very well

LocationService::loadLocationChildren()

Think of `LocationService::loadLocationChildren()` as primarily intended for administration interface. Has no filtering capabilities.

Further reading:

<http://www.netgenlabs.com/Blog/Fetching-content-in-eZ-Publish-5-using-Search-service>

Legacy Fetch Functions

PHP

```
use eZFunctionHandler;
...
$mySearchResults = $this->getLegacyKernel()->runCallback(
    function () use ( $searchPhrase, $sort, $contentTypeIdentifiers )
    {
        // eZFunctionHandler::execute is the equivalent for a legacy template fetch function
        // The following is the same than fetch( 'ezfind', 'search', hash(...) )
        return eZFunctionHandler::execute(
            'ezfind',
            'search',
            array(
                'query'      => $searchPhrase,
                'sort_by'    => $sort,
                'class_id'   => $contentTypeIdentifiers
            )
        );
    }
);
```

Templates

How to transform a full view TPL with children to Symfony?

full/folder.tpl

```
<h1>{$node.data_map.title.content|wash()}</h1>
{attribute_view_gui attribute=$node.data_map.short_description}
...

{def $list_items=fetch( 'content', 'list', ... ) }

{foreach $list_items as $child}
    {node_view_gui view=line content_node=$child}
{/foreach}
```

TPL

Moving to TWIG

Resources/view/full.html.twig

```
<h1>{{ ez_render_field( content, 'title' ) }}</h1>
{{ ez_render_field( content, 'short_description' ) }}
...
{{ render( controller( "CjwBaseBundle:Default:subItems", {'locationId': location.id } ) ) }}
```

TWIG

Controller/DefaultController.php

```
public function subItemsAction( $locationId )
{
    $response = new Response;
    $locationList = $this->fetchLocationListIncludingContentTypes( $locationId, array() );
    return $this->render(
        "CjwBaseBundle::sub_items.html.twig",
        array( "locationList" => $locationList ),
        $response
    );
}
```

PHP

Moving to TWIG

Resources/view/sub_items.html.twig

```
{% for location in locationList %}
    {{ render( controller( 'ez_content:viewLocation',
        {'locationId': location.id, 'viewType': 'line'} )) }}
{% endfor %}
```

TWIG

Our approach

- Basically one template per full view
- Render children directly in the full view template
- Generalized full and line view templates for the easy stuff

How to organize Templates?

The Symfony way...

```
views
└─ Customer
    CustomerDetail.html.twig
└─ Product
```

The classic eZ way...

```
views
└─ full
    customer.html.twig
└─ line
```

Two approaches, both valid. Follow your taste.



eZ View Cache vs. HTTP Caching

eZ View Caching (Legacy)

When the pagelayout is rendered, the `{$module_result.content}` part will be replaced with the actual output. If view caching is enabled, the entire result of the module will be cached. This means that the contents of the "module_result" variable will be put into a cache file (...)

When a new version (...) of an object is published, the system will automatically clear the view cache for the following items:

- All published nodes of the object
- The parent nodes
- Related nodes (keywords, object relations)

<https://doc.ez.no/eZ-Publish/Technical-manual/4.x/Features/View-caching>

HTTP Expiration and Validation (Symfony)

The HTTP specification defines two caching models:

- With the **expiration model**, you simply specify how long a response should be considered "fresh" by including a Cache-Control and/or an Expires header. Caches that understand expiration will not make the same request until the cached version reaches its expiration time and becomes "stale";
- When pages are really dynamic (i.e. their representation changes often), the **validation model** is often necessary. With this model, the cache stores the response, but asks the server on each request whether or not the cached response is still valid. The application uses a unique response identifier (the Etag header) and/or a timestamp (the Last-Modified header) to check if the page has changed since being cached.

http://symfony.com/doc/current/book/http_cache.html

In Short (and much simplified...)

eZ View Cache caches **content** and **content fragments**

- Standard TTL is 2 hours
- Is purged on content modifications (with smart cache clearing rules)

Symfony's HTTP Cache caches **requests**

- eZ uses Expiration model by default
- Standard TTL is 60 seconds (86400 for tree menu!)
- Symfony Cache is purged from backend

Let's dive in a bit deeper...

ez 4 Cache Directives

Code from `ezpublish_legacy/kernel/private/classes/ezpkernelweb.php`

```
// send header information                                PHP
foreach (
    eZHTTPHeader::headerOverrideArray( $this->uri ) +
    array(
        'Expires' => 'Mon, 26 Jul 1997 05:00:00 GMT',
        'Last-Modified' => gmdate( 'D, d M Y H:i:s' ) . ' GMT',
        'Cache-Control' => 'no-cache, must-revalidate',
        'Pragma' => 'no-cache',
        ...
    ) as $key => $value
)
{
    header( $key . ': ' . $value );
}
```

This guarantees that every request is handled by eZ

eZ 5 Cache Directives

Code from

`vendor/ezsystems/demobundle/EzSystems/DemoBundle/Controller/DemoContr`

```
// Setting HTTP cache for the response to be public and with a TTL of 1 day.
$response = new Response;
$response->setPublic();
$response->setSharedMaxAge( 86400 );
// Menu will expire when top location cache expires.
$response->headers->set( 'X-Location-Id', $rootLocationId );
// Menu might vary depending on user permissions, so make the cache vary on the user hash.
$response->setVary( 'X-User-Hash' );
```

PHP

This effectively sets the Response free, out of the reach of eZ

Emulating eZ 4 Cache behaviour in eZ 5

This patch to `index.php` disables client and proxy caching without sacrificing the benefits of the Symfony HTTP cache. Use at own risk!

```
$response = $kernel->handle( $request );
```

PHP

```
// Emulate eZ 4 cache control
```

```
$response->headers->set( 'Cache-Control', 'no-cache, must-revalidate' );
```

```
$response->send( );
```

```
$kernel->terminate( $request, $response );
```

Cache Recommendations

- Read the specifications
- Use Shared Caches with caution
- Cave: `setTtl()` vs. `setClientTtl`
- Set TTL as high as possible
- Use Varnish
- <http://tools.ietf.org/html/rfc2616#page-74>
- https://www.mnot.net/cache_docs/

Cache per User - User Hash Definer

src/Cjw/SiteCustomerBundle/Identity/UserHashDefiner.php

PHP

```
namespace Cjw\SiteCustomerBundle\Identity;
use eZ\Publish\SPI\User\IdentityAware;
use eZ\Publish\SPI\User\Identity;
use eZ\Publish\API\Repository\Repository;
class UserHashDefiner implements IdentityAware
{
    private $repository;
    public function __construct(Repository $repository)
    {
        $this->repository = $repository;
    }
    public function setIdentity(Identity $identity)
    {
        $current_user = $this->repository->getCurrentUser();
        $identity->setInformation('UserID', $current_user->contentInfo->id);
    }
}
```

#ezsummer

36/64

Cache per User - yml config

src/Cjw/SiteCustomerBundle/Ressources/config/services.yml

YML

parameters:

```
cjw_site_customer.user_hash_definer.class: Cjw\SiteCustomerBundle\Identity\UserHashDefiner
```

services:

```
cjw_site_customer.user_hash_definer:
```

```
  class: %cjw_site_customer.user_hash_definer.class%
```

```
  tags:
```

```
    - { name: ezpublish.identity_definer }
```

```
  arguments: [@ezpublish.api.repository]
```

Cache per User - Controller

src/Cjw/SiteCustomerBundle/Controller/CjwController.php

PHP

```
public function sectionInternalAction($locationId, $viewType, $layout = false, array $param
{
    $response = new Response();
    $response->setPrivate();
    $response->headers->set('X-Location-Id', $locationId);
    $response->setVary('X-User-Hash');
    return $response;
}
```

Cache per User - Location View Configuration

src/Cjw/SiteCustomerBundle/Ressources/config/ezpublish/override.yml

YML

```
system:
  customer_user_de:
    location_view:
      full:
        section_internal:
          controller: "CjwSiteCustomerBundle:Cjw:sectionInternal"
          match:
            Identifier\Section: internal
```



Debugging

Coping with blank screens

Blank screen, "503 Service not available"

- PHP errors (Syntax error, Memory, Outdated Autoloads, ...)
- Configuration errors (DB connection, ...)
- Switch to DEV mode for better debugging
- Check the log files

Apache/PHP Log

ezpublish/logs/<env>.log

ezpublish_legacy/var/log/*

ezpublish_legacy/var/<siteaccess>/log/*

- Check write permissions on log files!

TwigBundle:Exception:error500.html.twig

- NEVER a Twig error!
- Caused by response 500 "Internal Server Error" and missing error template
- Checks as before

Twig Exception: Invalid variation "<variation>"

Caused by problems when accessing images

- Check if the file exists
- Check permissions on `ezpublish_legacy/var/<siteaccess>/storage`
- Check log files
- Clear cache

Class 'ezxFrmToken' not found

- Usually found with fresh installations involving legacy extensions
- Regenerate Autoloads

```
$ cd ezpublish_legacy
```

BASH

```
$ php bin/php/ezpgenerateautoloads.php -e -p
```



Pitfalls

Avoid the traps...

Memory limit exceeded in DEV mode

- DEV mode takes a lot of memory
- Stash Logging is the worst
- Disable Stash Logging in ezpublish.yml

stash:

logging: **false**

cache:

default:

handlers:

– **FileSystem**

inMemory: **true**

registerDoctrineAdapter: **false**

YML

414 Request-URI Too Long

When doing subrequests, particularly ESI or Hinclude ones, current SiteAccess is transmitted in a serialized form, with its matcher. With a large number of configured SiteAccesses using Map\Host or Map\URI matcher (around 40, which is not uncommon for a multi-national, multi-lingual site) the URL can exceed the size of 8192 Bytes which most servers accept. As a result, the ESI/Hinclude call fails.

- Fixed in Version 5.3.3 (2014.07)
- <https://jira.ez.no/browse/EZP-23168>
- <https://github.com/ezsystems/ezpublish-kernel/pull/949>



Multi-Site/Multi-Repository Setup

Why a Multi-Site/Multi-Repository Setup?

- At CJW Network we have developed a multi-site/multi-repository setup for eZ Publish 4 several years ago
- This allows us to host many individual sites on a single eZ Publish installation

Advantages:

- Central site administration (site activation, cronjobs, ...)
- Easy deployment (update site extension with Subversion)
- Highly reduced maintenance costs (security patches, upgrades)
- Highly efficient use of hardware resources

Disadvantages:

- Some Kernel patches needed

Multi-Site/Multi-Repository Setup in eZ 5

First Approach (proven in production)

- Use different `ezpublish` app directories to host the different sites

Second approach (under development)

- Use `CJW MultiSiteBundle`

Directory structure - Multi-Site-Setup (old)

```
ezpublish                                <-- not used
ezpublish_legacy
└extension
  └site_customer                        <-- each customer has its own extension and database
  └site_customertwo
└var
  └site_customer                      <-- each customer has its own var directory
  └site_customertwo
site_customer                          <-- each customer has its own Symfony app
site_customertwo
src
└CjwNetwork
  └SiteCustomerBundle                <-- each customer has its own bundle
  └SiteCustomertwoBundle
```

Multi-Site-Setup (old) Detail ezpublish_legacy

ezpublish_legacy

└extension

└site_customer <-- each customer has its own extension

└classes

└design

└modules

└settings

└site.ini

└[DatabaseSettings] <-- each customer has its own database

└Database=database_site_customer

└site_customertwo

└[...]

└settings

└site.ini

└[DatabaseSettings]

└Database=database_site_customertwo

└var

└site_customer <-- each customer has its own var directory

└site_customertwo

#ezsummer

Detail site_customer App - Multi-Site-Setup (old)

```
site_customer
├─ autoload.php
├─ bootstrap.php.cache
├─ cache
├─ check.php
├─ config    <-- all yml files like ezpublish folder, (to improve)
│   └─ config.yml
│   └─ ezpublish.yml
├─ parameters.yml
├─ console
├─ logs
├─ phpunit.xml.dist
├─ Resources
├─ sessions
├─ SiteCjwbaseCache.php
├─ SiteCjwbaseKernel.php
├─ SymfonyRequirements.php
```

Scripts on Shell - Multi-Site-Setup (old)

BASH

Generate symlinks

```
php site_customer/console assets:install --symlink web
```

```
php site_customer/console ezpublish:legacy:assets_install --symlink web
```

Clear Cache

```
php site_customer/console --env=prod cache:clear
```

Dump assets

```
php site_customer/console assetic:dump --env=prod web
```

Run cronjobs

```
php site_customer/console ezpublish:legacy:script runcronjobs.php --siteaccess customer_user_de
```

Multiple Apps: Multi-Site-Setup (old)

- You can use one development environment with many projects
- You can use one or more production servers or
- easily check out customer to different servers
- all customer are encapsulated apps
- solid and proven for more than 1,5 years
- Examples ...

Introducing CJW MultiSiteBundle

Although the first approach works fine, it has several drawbacks:

- Application code scattered at different places (site directory, bundle, legacy extension), hard to maintain in VCS, hard to deploy
- Redundancy in config files
- No global settings
- No central site activation/administration
- Goal: keep everything in one place!

CJW MultiSiteBundle Features

- Boots kernel and environment based on domain name mappings
- Handles local, staging and live domain names
- Allows for global activation of bundles
- Allows for global settings
- Provides a common console for all sites
- Caches domain name mappings
- Moves cache and log files away from the ezpublish folder
- more to come ...

cjwpublish Directory

The `cjwpublish` application directory sits next to the `ezpublish` directory.

```
cjwpublish
```

```
└─ config
```

```
    cjwpublish.yml
```

```
<-- defines active bundles
```

```
    config.yml
```

```
<-- allows for global settings
```

```
CjwPublishKernel.php
```

```
<-- inherits from CjwMultiSiteKernel.php
```

```
CjwPublishCache.php
```

```
<-- inherits from CjwMultiSiteCache.php
```

```
console
```

Symfony's app directory is back

Site Bundle Directory Layout

```
src
└─ Cjw
   └─ SiteExampleBundle
      └─ app
         └─ config
            ├── cjwpublish.yml      <-- contains domain mappings
            ├── config.yml
            ├── ezpublish.yml
            └─ ...
            CjwSiteExampleKernel.php <-- inherits from CjwPublishKernel.php
            CjwSiteExampleCache.php  <-- inherits from CjwPublishCache.php
         └─ Controller
            ...
```

Caveats

Adjustments needed in `config.yml` to reflect different relative location of kernel

```
assetic:
    ...
    read_from:      %kernel.root_dir%/../..../web
    write_to:        %kernel.root_dir%/../..../web
    ...
ez_publish_legacy:
    ...
    root_dir: %kernel.root_dir%/../..../ezpublish_legacy

parameters:
    ezpublish.kernel.root_dir: %kernel.root_dir%/../..../vendor/ezsystems/ezpublish-kernel
```

More problems of this kind expected!

Project Status TODO

- Currently in private Beta, not yet released
- Ideas and Feedback welcome
- Public Beta in October
- info@cjw-network.com
- <https://github.com/cjw-network/MultiSiteBundle>

Ressources TODO

Slides as PDF

- see `src/Cjw/SummerCampBundle/Resources/doc/learnings.pdf`
- <https://github.com/cjw-network/SummerCampBundle/Resources/doc/learnings.pdf>

Slides (Source)

- <https://github.com/dfritschy/cjw-summercamp-slides>

CJW MultiSiteBundle

- <https://github.com/cjw-network/MultiSiteBundle>
- info@cjw-network.com



<http://vote.netgenlabs.com/>

Please Vote!

<Thank You!>

Ekkehard Dörre

<http://share.ez.no/community/profile/7431>

[@ekkeD](#)

<http://www.coolscreen.de>



Donat Fritschy

<https://github.com/dfritschy>

<http://share.ez.no/community/profile/10451>

[@webmanufaktur](#)

<http://www.webmanufaktur.ch>