adaptTo()

EUROPE'S LEADING AEM DEVELOPER CONFERENCE

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Don't use the repository structure as your primary abstraction!

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What is this talk about?

- In AEM projects very often low-level features are used, which hardcode repository structure and often are error-prone to use.
- I want to show how you can overcome this problem by introducing proper domain abstractions.

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$ whoami

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- Architect, Adobe
- 10+ years with AEM/CQ5

What's the problem?

- The only broadly accepted and used abstractions provided by AEM:
  - Page
  - Asset
- And the low-level ”Resources”, ”Nodes” and “Properties”

- Examples for missing abstractions
  - Site (”What is the homepage for the German site?”)
  - Product (“what’s the name of product XY?”)
  - Product Category (“Give me all products of category A”)
  - . . .

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Missing models

- We just focus on the UI elements of a page and create models for it (CarouselModel, NavigationModel, …).
- For everything else we use Resources, Nodes, and a lot of utility functions.
- These hardcoded structures and implicit assumptions make evolution very hard.

CRXDE driven development

```
String path = CONTENT_BRAND + country + "/" + language +  "/homepage";
Resource homepage = resourceResolver.getResource(path);
```

The anti-pattern – an example

- Get the contact address which is stored on a site level.

The anti pattern – an example

```
Page getSiteRoot(Resource r) {
 // iterate up the tree up
 // until the root page is found
}

Page root = getSiteRoot(currentPage.getResource());
Page settings = root.getChild("settings");
String contactAddress = settings.getValueMap()
      .get("contactAddress");
```

Potential NPE!

Hardcoded repository structure

A better version of it

```
String contactAdress =
Optional.ofNullable(currentPage.adaptTo(Site.class))
        .map(site -> site.getSettings())
        .map(settings -> settings.getProperty(“contactAddress”)
        .orElse(return “default”);
```

- Error handling included
- No resource, no valueMap, no assumptions
- Easier refactoring, easier reasoning, easier debugging

Our goal

- Avoid using resources when better abstractions are available!
- If there are no abstractions, create them!
- Do not deal with paths!
- Error cases should be easy to spot and to deal with.

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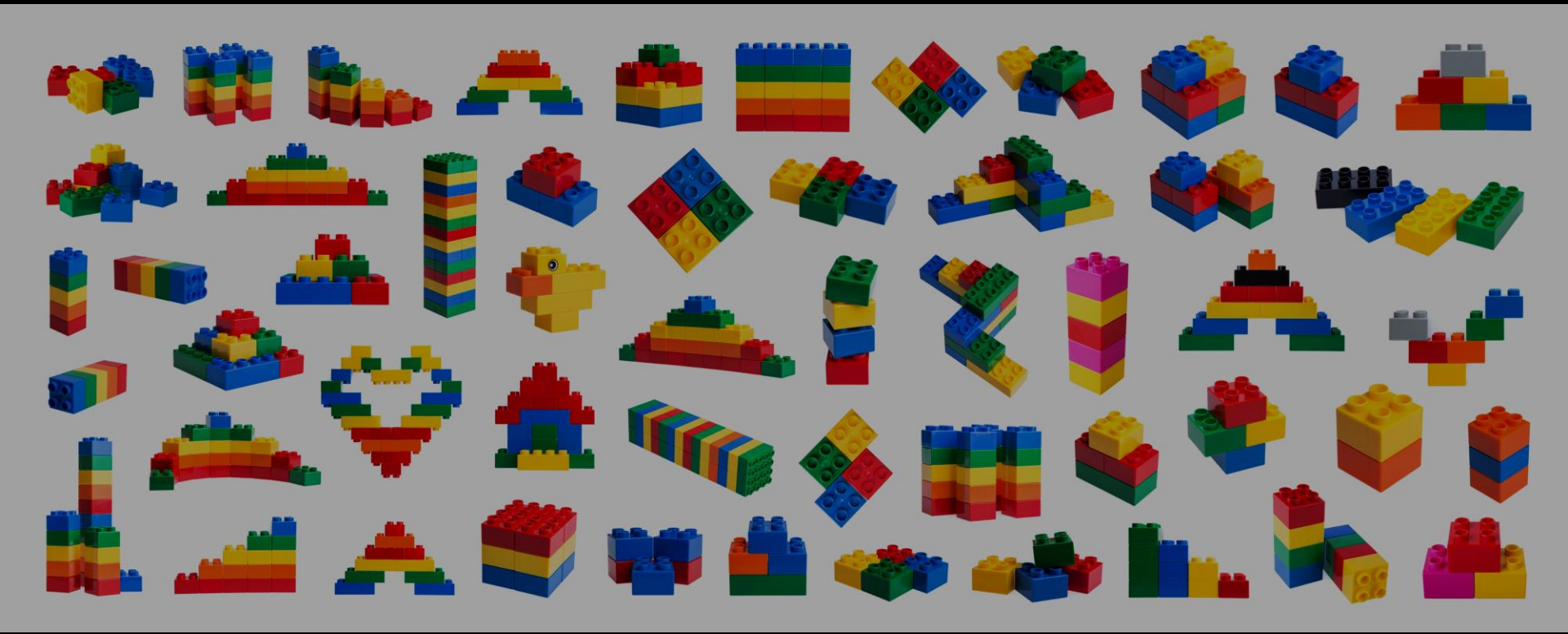
Build domain objects



How?

- You normally know all your domain models from the discovery phase of your project
- Model them explicitly
- If they are represented in the repository: make them available via resource.adaptTo()

What's the benefit of it?

- You and your team can practice DRY
  - Avoid all the "get me the Site root" utility methods scattered across you codebase
- Centralize and harmonize the validation of your constraints
- Refactoring of code and content gets much easier

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Example

The missing concept in AEM …

The “site” object

Site structure

This 3-level structure is widely known and used

- Brand site
- Country site
- Language site

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Typical operations we need

- To what country belongs the current page?
- Is this page available in other languages?
- What's the contact address for the current site (language specific with country fallback)?
- …

How is it used?

To what country belongs currentPage?

```
String countryName =
        currentPage.adaptTo(CountrySite.class)
        .getLocalizedCountryName();
```

- We don’t care how it is determined.
- And based on the available languages it could even return “Deutschland” when currentPage belongs to de/de and “Germany” for de/en.

How is it used?

Is this page available in other languages?

```
String relativePath =
       currentPage.adaptTo(LanguageSite.class)
       .getRelativePath(currentpage);
Page[] siblingsInOtherLanguages =
       currentPage.adaptTo(CountrySite.class)
       .getLanguageSites().stream()
       .map(ls -> ls.getRelativePage(relativePath))
       .filter(Objects::NotNull)
       .toArray();
```

The Implementation of the sites

- Checkout the code at https://github.com/joerghoh/adaptto2020-domains

Remember our goals

- Avoid using resources when better abstractions are available!
- If there are no abstractions, create them!
- Do not deal with paths!
- Error cases should be easy to spot and to deal with.

Call to action

- Identify the concepts you are constantly using in your daily discussions.

- Implement these concepts and facilitate the adapter pattern to make them universally available.

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Q&A

Questions? Contact me

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https://cqdump.wordpress.com/about