

SCG Pier migration

Ivan Ginovski

Mentor: Prof. Oscar Nierstrasz

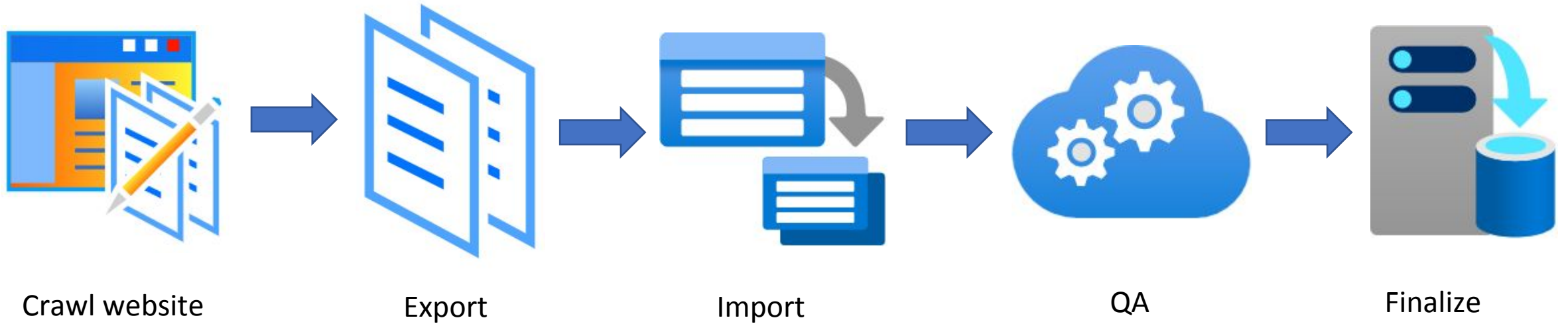
Goal



Prerequisites

- knowledge of the old platform
- knowledge of the new platform (Drupal)
- knowledge of the problem domain
- knowledge of the migration process

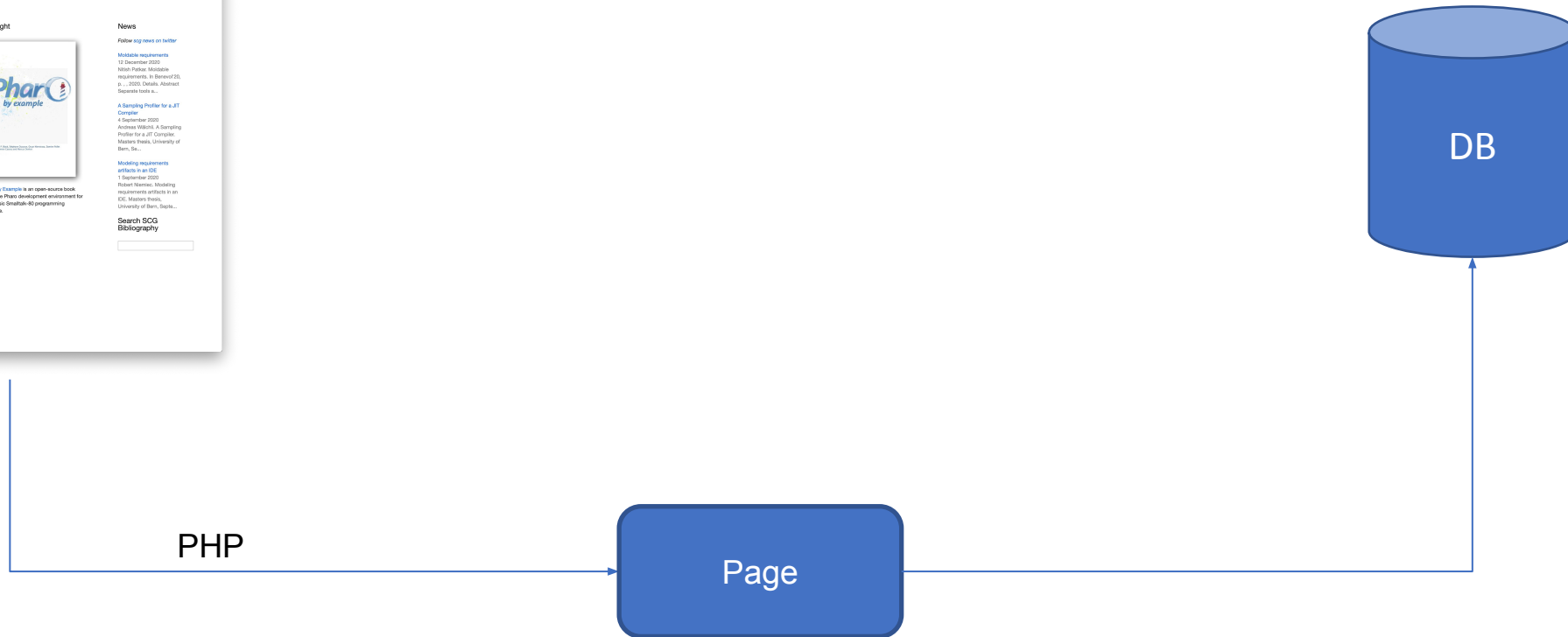
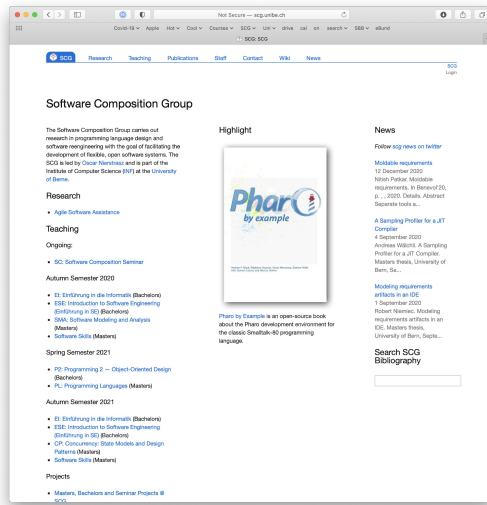
Migration Strategy



Migration approaches

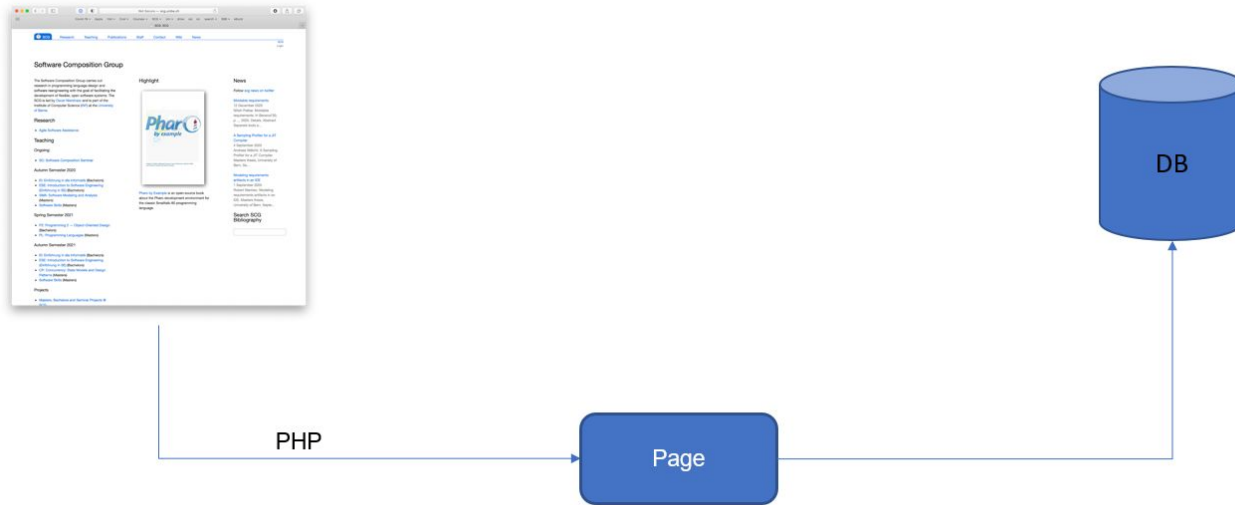
1. Naive approach
2. Semantic approach
3. Structural approach

Naive approach



Crawl the websites, extract content as a page and import into target CMS

Naive approach



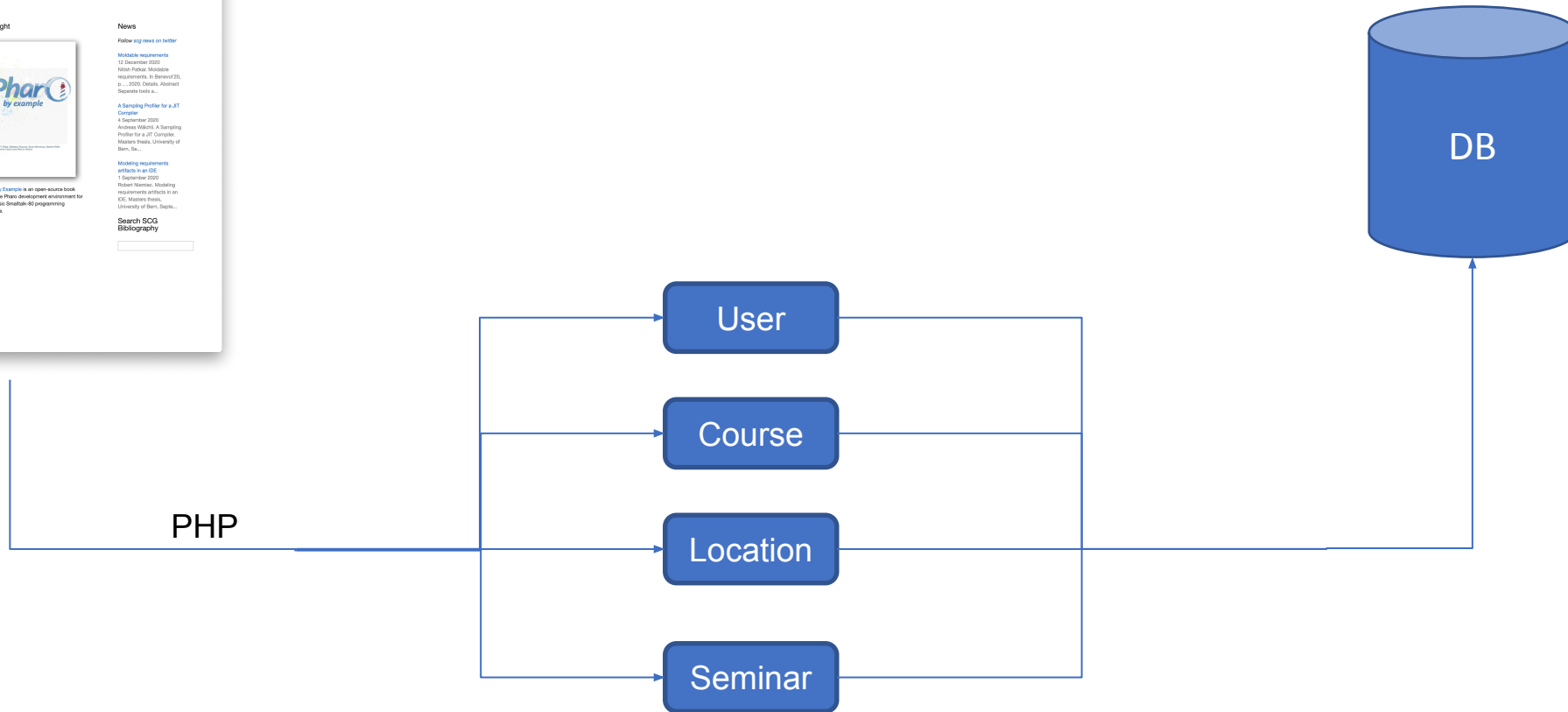
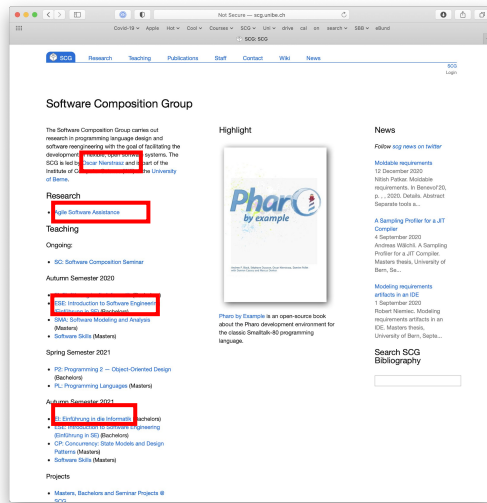
Pros:

- Everything can be done externally
- Parse HTML

Cons:

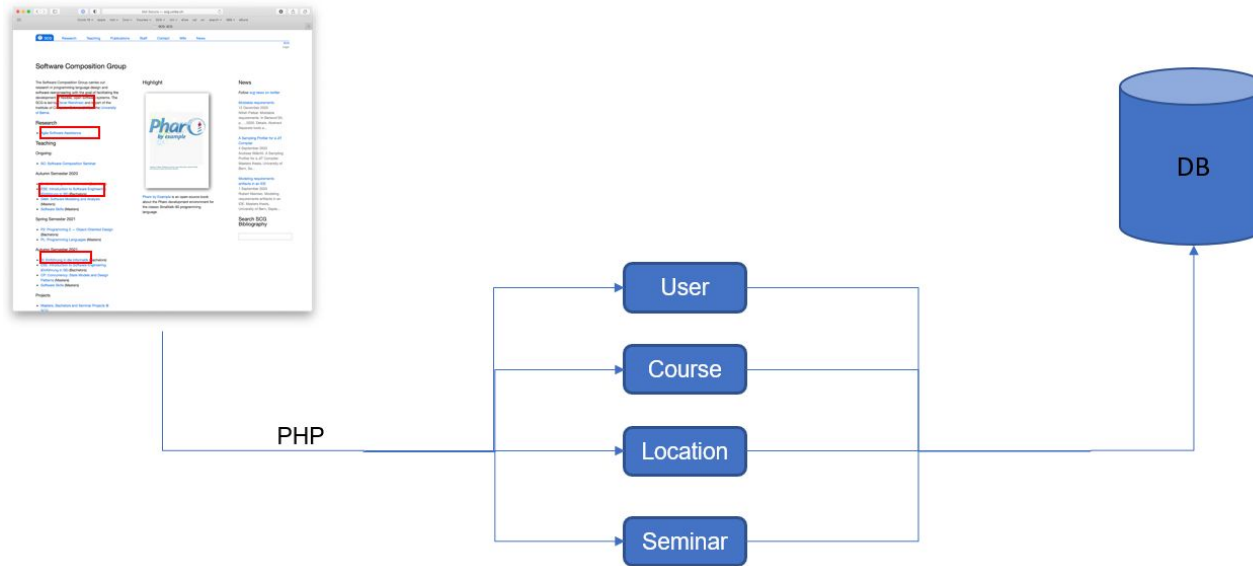
- Which pages are dynamic or static
- Hardcoded HTML (no additional info)
- No control over CSS
- Resources (images/server files) – external retrieval, access problems

Semantic approach



Crawl the websites, extract content into elements and import into target CMS

Semantic approach



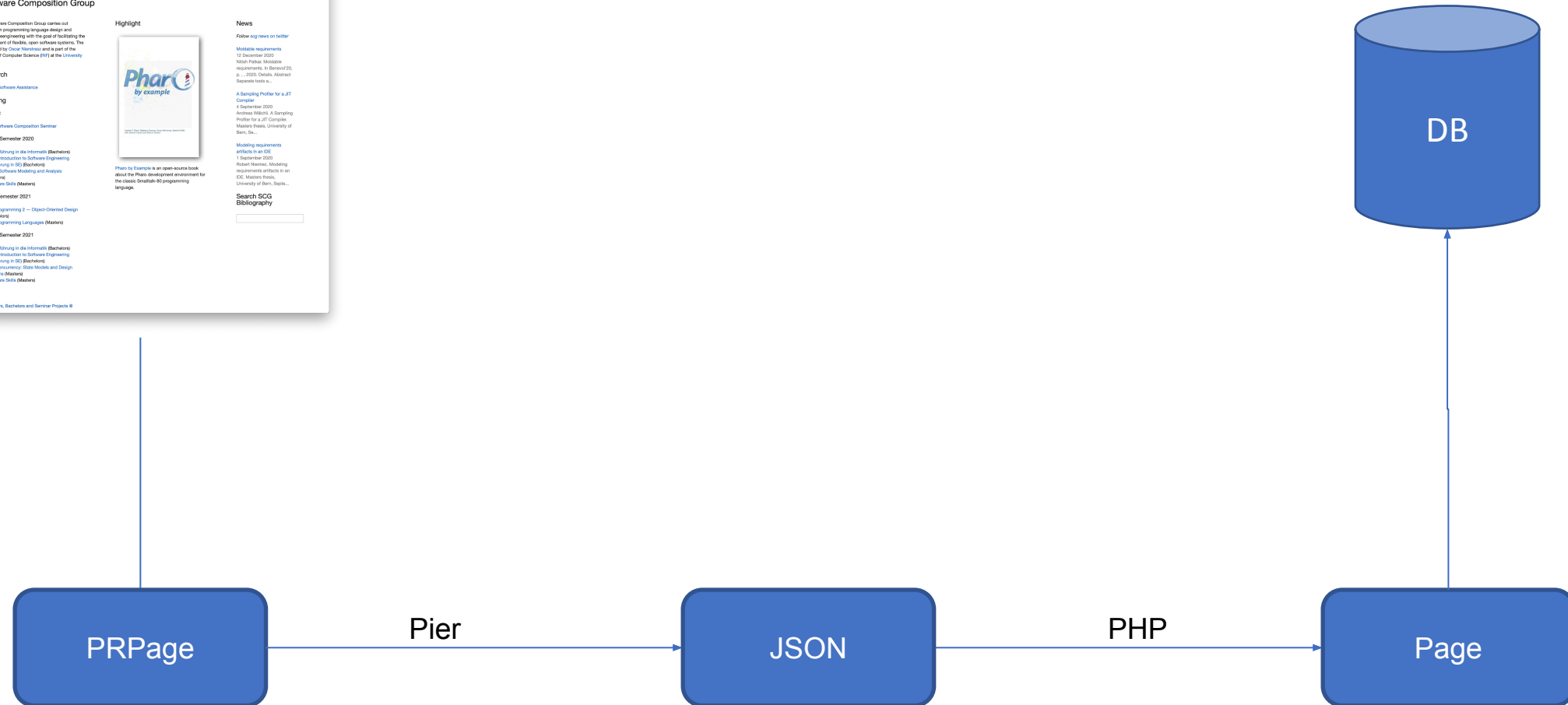
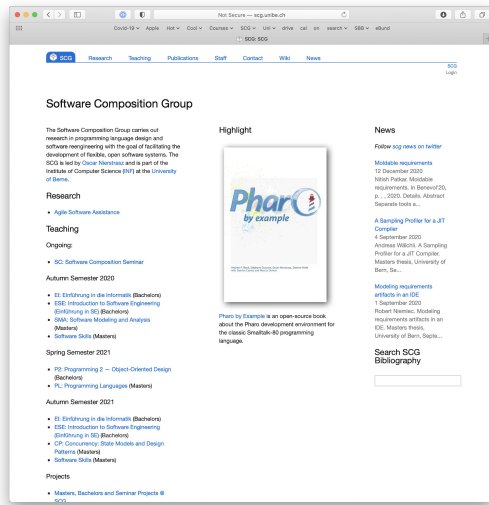
Pros:

- Optimal structure
- Everything is related

Cons:

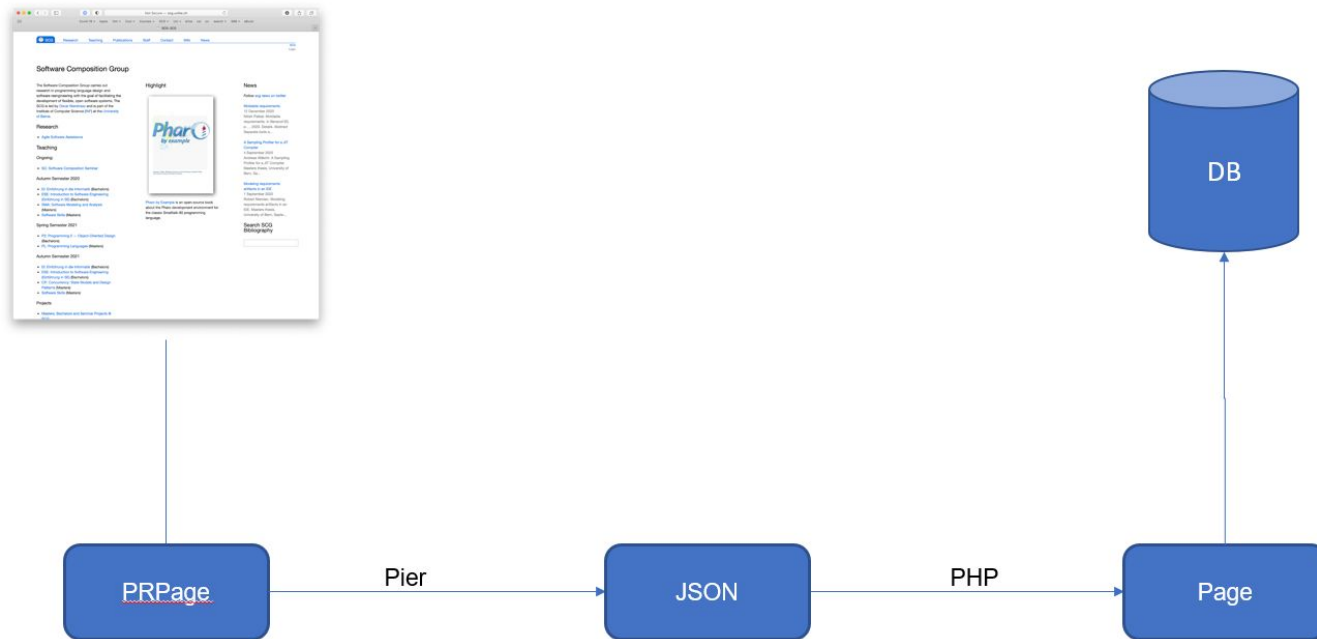
- Resembles as a “starting work from scratch” project
- A lot more effort needed
- Difficult to identify entities

Structural Approach



Extract content from PierCMS into JSON data and import into target CMS

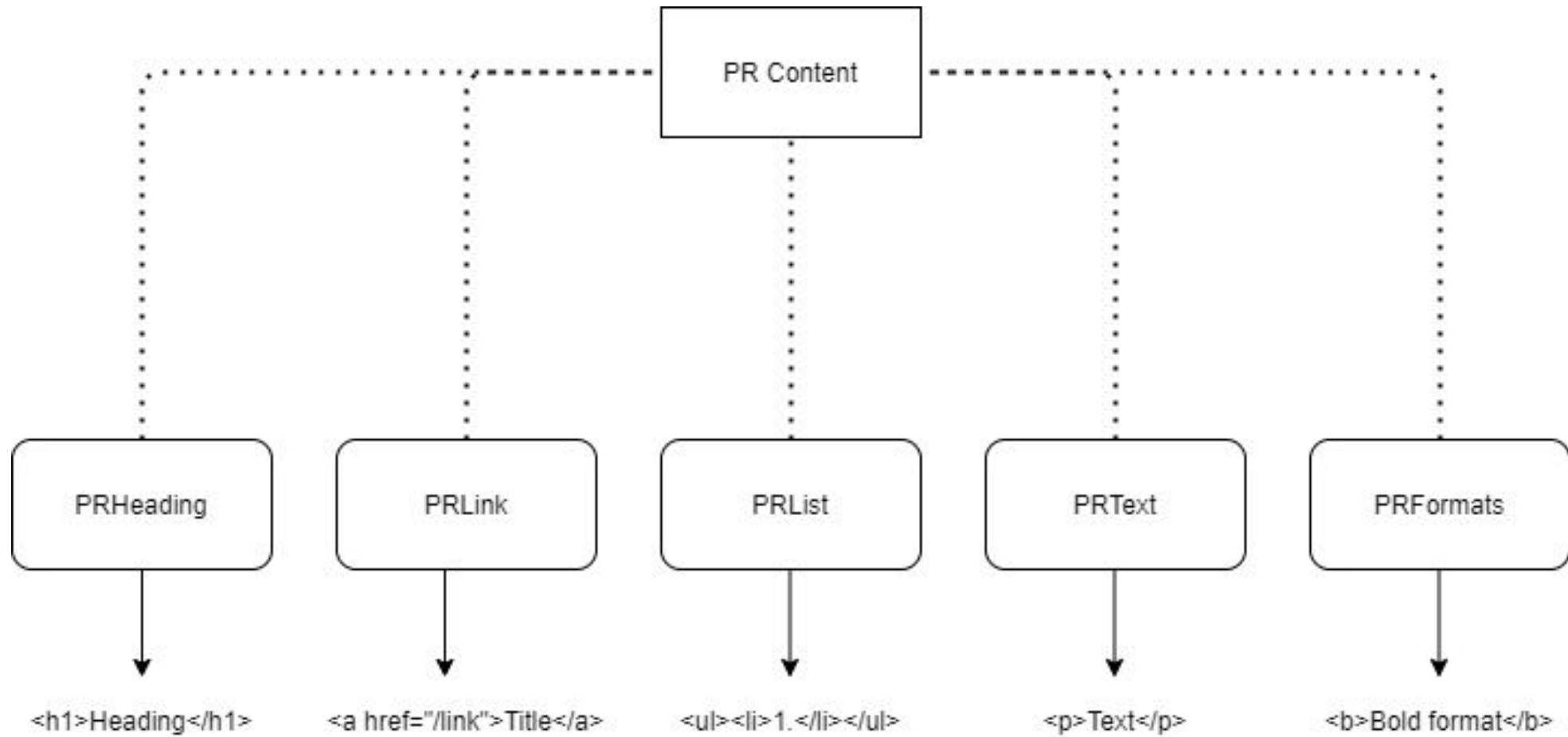
Structural Approach



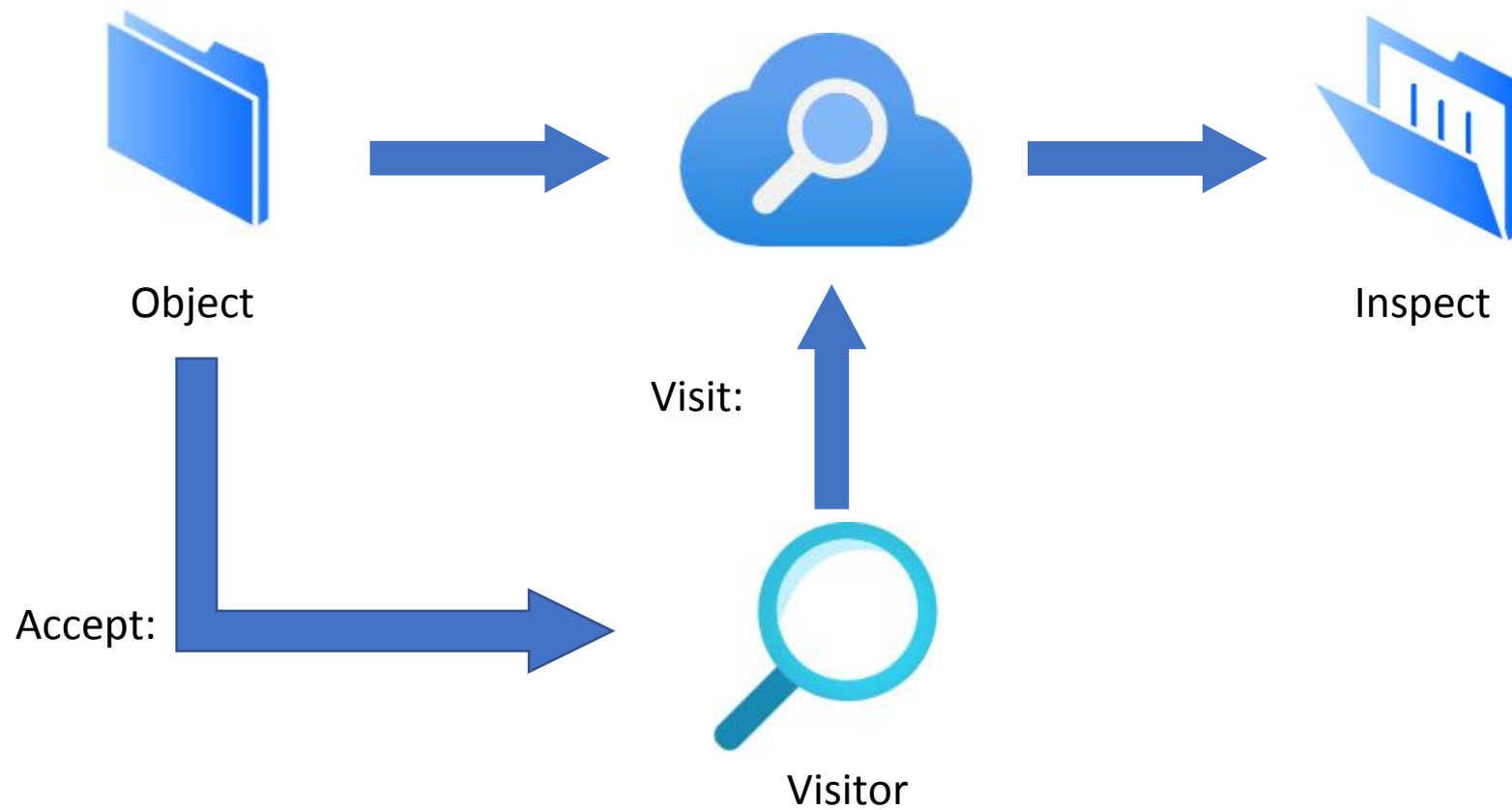
Pros:

- Appropriate format in the target site
- Generic solution
- Flexibility to manage the content easier

PierCMS Content



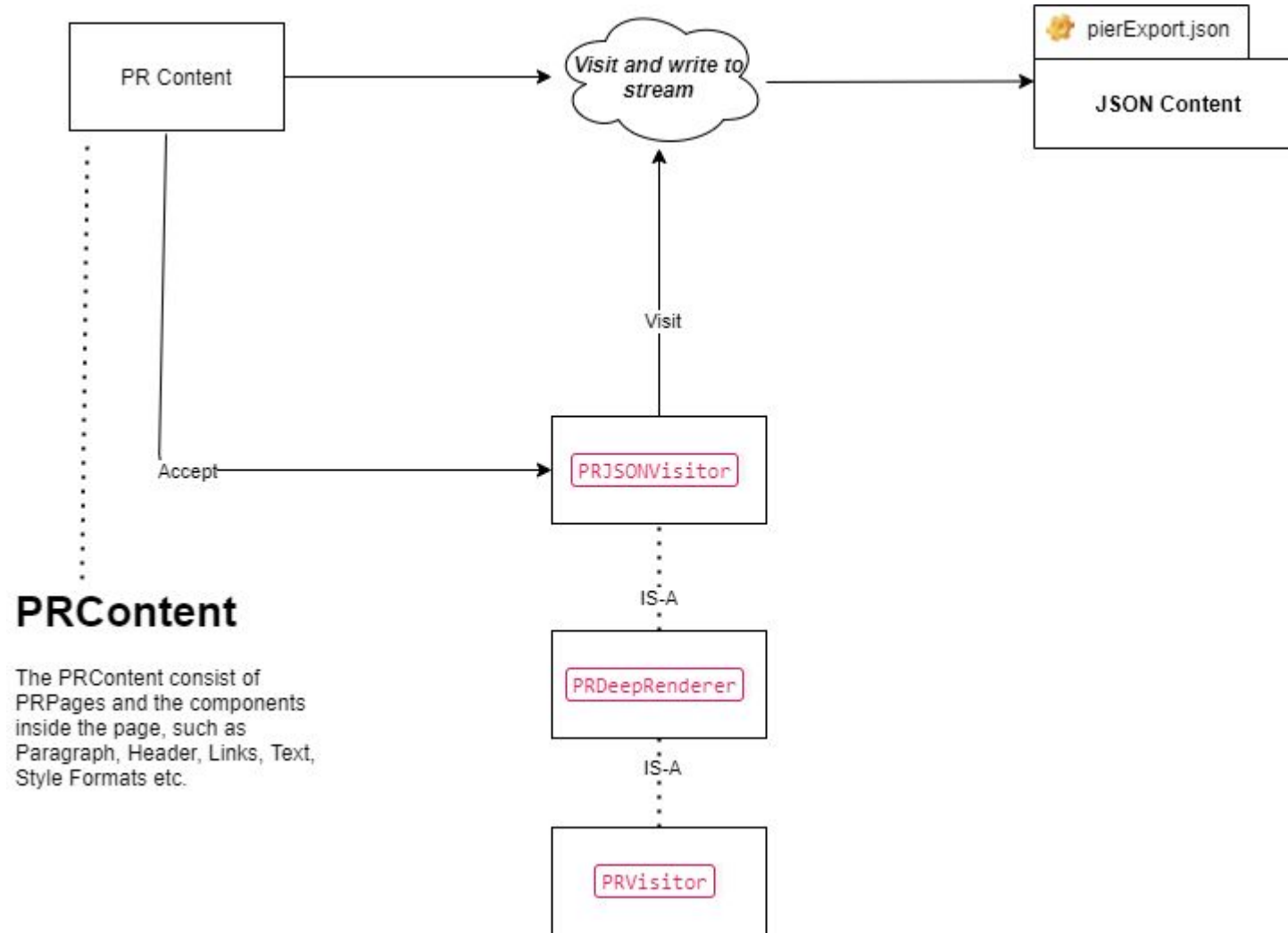
Visitor Design Pattern



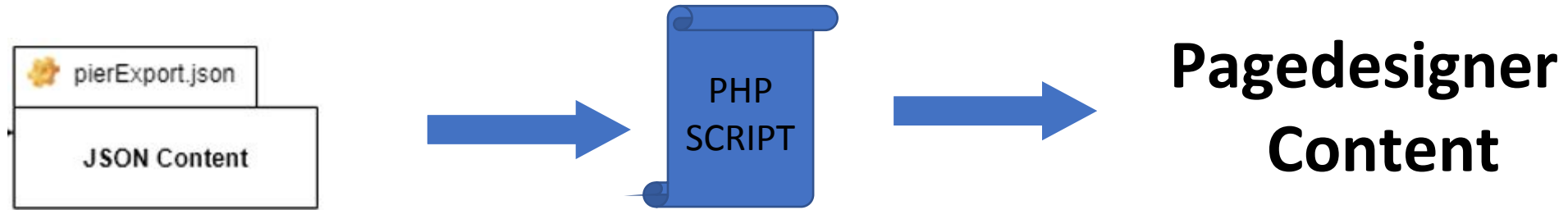
Visitor Design Pattern

- Two essential functions:
 1. **accept: Visitor v**
 - Gives access of the object properties to the visitor
 2. **visit: Component c**
 - Performs operations on the object that is being visited (generate JSON)

Export Workflow



Import Workflow



Overview

Software Composition Group

The Software Composition Group carries out research in programming language design and software reengineering with the goal of facilitating the development of flexible, open software systems. The SCG is led by [Oscar Nierstrasz](#) and is part of the Institute of Computer Science (INF) at the [University of Berne](#).

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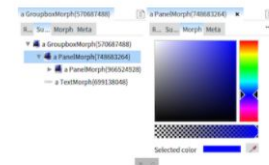
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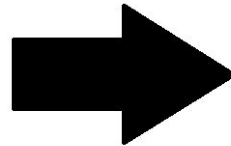
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Highlight



[Moldable Inspector](#) provides high-level ways to visualize and explore objects



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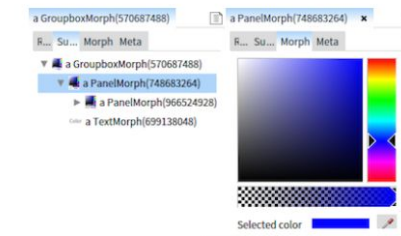
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<http://scg.unibe.ch>

<https://ig-drpl.docker-dev.iquall.ch>

Navigation menu



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Easier to do manually:

Menü-Link

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TODO: URL Paths

- <https://scg.unibe.ch/path/to/page>
- <https://ig-drpl.ch/node/23>
- “/path/to/page” included in JSON
- **Solution: Pathauto Module** <https://ig-drpl.ch/path/to/page>

TODO: News Block, SCGBib

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Highlight



[Pharo by Example](#) is an open-source book about the Pharo development environment for the classic Smalltalk-80 programming language.

News

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[Moldable requirements](#)

12 December 2020
Nitish Patkar. Moldable requirements. In Benevol'20, p. , , 2020. Details. Abstract
Separate tools a...

[A Sampling Profiler for a JIT Compiler](#)

4 September 2020
Andreas Walchli. A Sampling Profiler for a JIT Compiler. Masters thesis, University of Bern, Se...

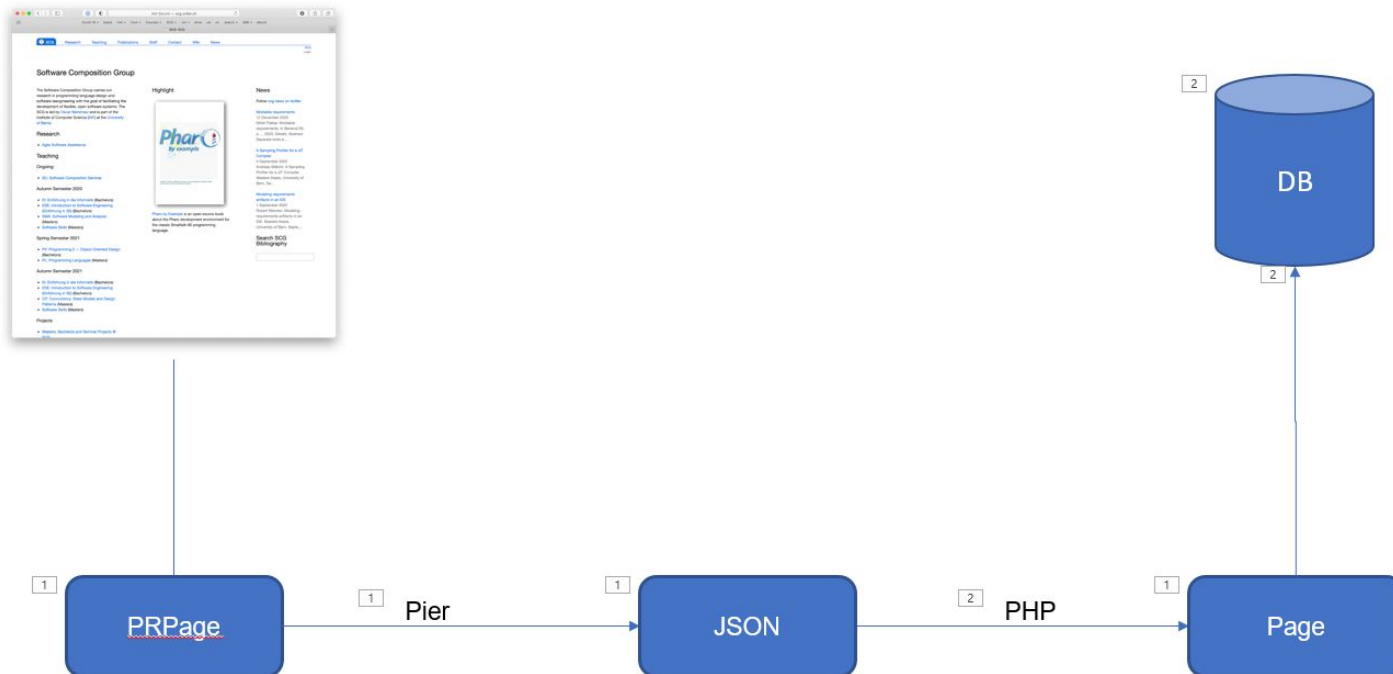
[Modeling requirements artifacts in an IDE](#)

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Summary

Structural Approach



- Static pages
- URL Paths
- ✗ News block
- ✗ SCGBib
- ✗ Dynamic pages

**Thank you
for your attention**

Backup slides with technical details

Naive approach

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This is an open-source book that distills successful reengineering techniques. [Learn more...](#)

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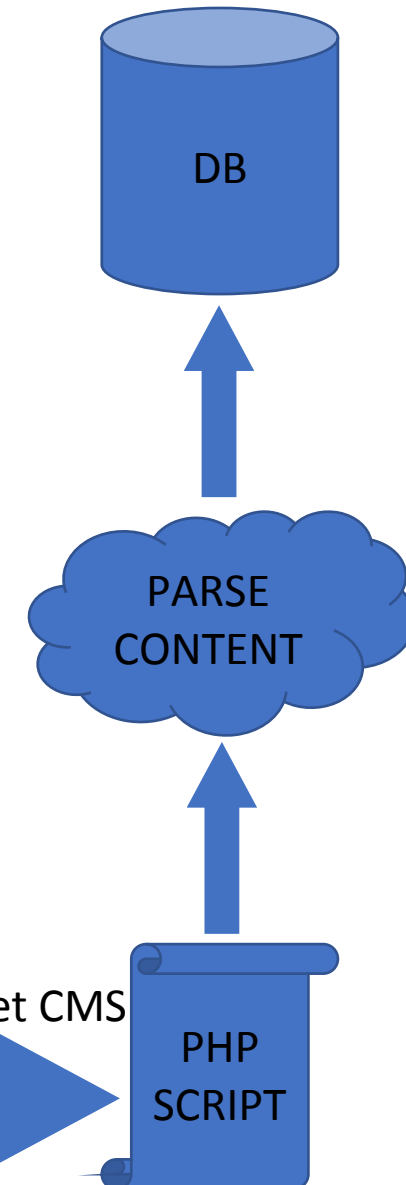
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Crawl the websites, download content and import into target CMS

HTTP RESPONSE



Semantic approach

Software Composition Group

group

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user

location

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Pros:

- Optimal structure
- Everything is related

Cons:

- Resembles as a “starting work from scratch” project
- A lot more effort needed
- Difficult to identify entities

Visitor Design Pattern

- Visitor is a behavioral design pattern.
- Represents an operation to be performed on the elements of an object structure.
- Visitor lets you define a new operation without changing the classes of the elements on which it operates.

Migration Strategy

Keep or leave out?

A picture would be better for this, too much text

- Phase I: Implementing program of web crawling and webpage parsing
=> output
- Phase II: Implementing program to import JSON data into Drupal 8 site (PHP)
- Phase III: QA test
- Phase IV: Finally, to run programs to migrate the whole site to Drupal 8 site on Production.

Migration Steps

Keep or leave out?,
Do 1 picture with these two slides

- **Crawl** – List of all the website URLs (XML sitemap)
- **Analyze CMS Features**
 - Widgets  Plugins
- **User Stories and Acceptance Criteria**
- **Final Checks**
 - Search for errors/bugs/broken URLs
- **Monitor traffic and Post-Migration fixes**

Naive approach

- 1. Crawl the existing website and download all the content
- 2. Create the templates needed for the content
- 3. Import the HTML contents into the new CMS

Structured Approach

- 1. Export all the content into general structure (JSON)
- 2. Target CMS that has functionality for the features (news/scg bib filtering/pdf generate pages/cronjob)
- 3. Create the templates needed for the content
- 4. Import the content to the CMS (in the appropriate format)
- PHP Script - logic that can create the content from the structured data

Semantic Approach

- 1. Export all the content into general structure (JSON)
- 2. Export/Convert raw data in Pier into structured data (e.g. teachings, classes, dates, PDFs)
- 3. Import the content to the CMS
- - logic that can create the content from the structured data

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Structured Approach

- Pros:
 - Appropriate format in the target site
 - Generic solution
 - Flexibility to manage the content easier
- Cons:

Semantic Approach

- Pros:
 - Optimal structure
 - Everything is relative and connected – more robust
- Cons:
 - Resembles as a “starting work from scratch” project
 - A lot more effort needed
 - Multiple iterations needed for referencing each node (content entity)