know your architecture

... a story told from the new guy in the team

Peter Zberg, 05.04.2023

About me

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- Software Engineer @ CSS Insurance
  - Yes, we are hiring :-)

Let the story begin…

First day at work

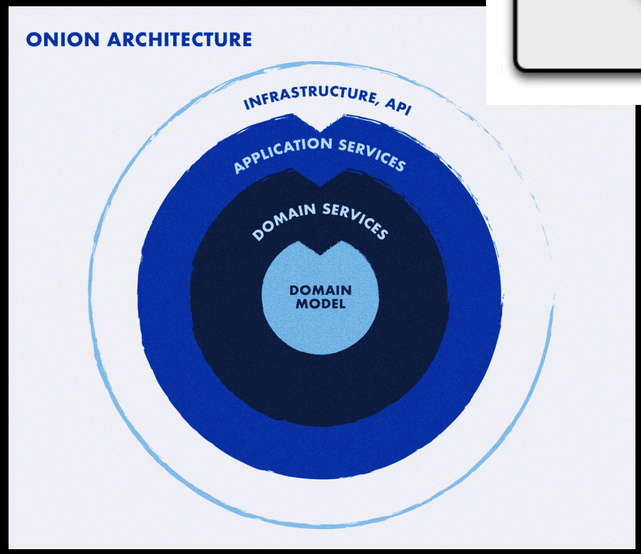
- Senior
  “We do TDD, Clean-/Onion-/Hexagonal Architecture, Agile, …”

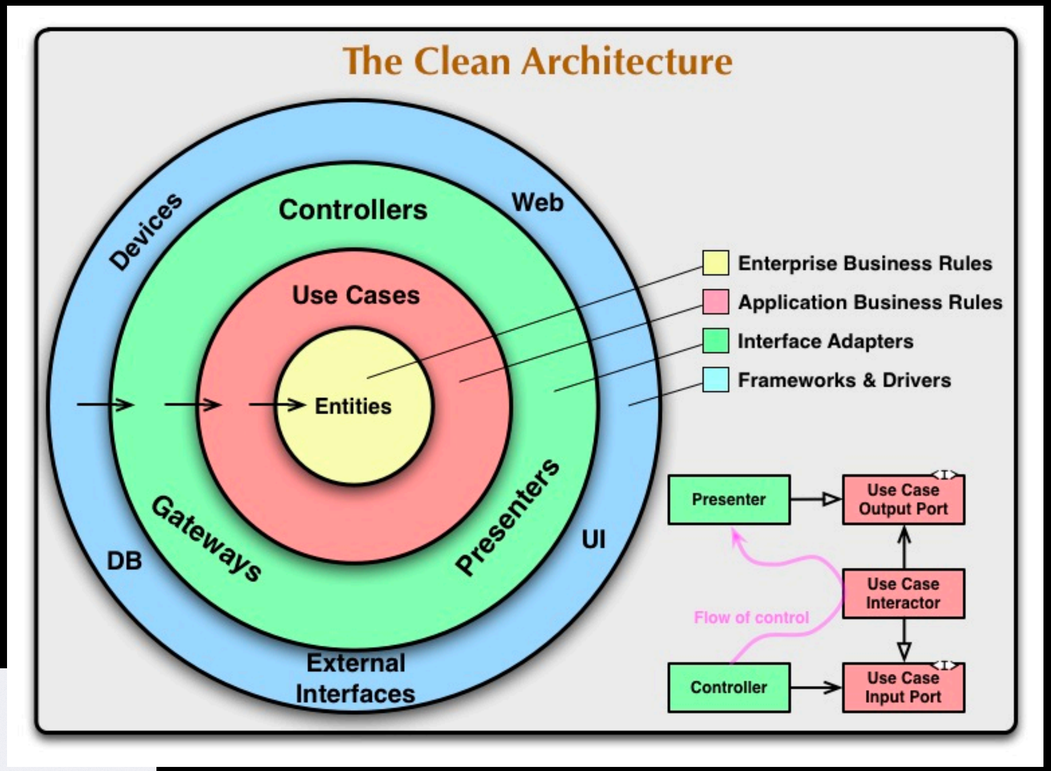
- me:

- also me thinking:
  “WTF is Clean-/Onion-/Hexagonal Architecture?”

… still first day

- me googling:
  “clean architecture”
  “hexagonal architecture”
  “onion architecture”





Second day

First task

- Task:
  - our application service needs to query information from a service xy and add the value to the response

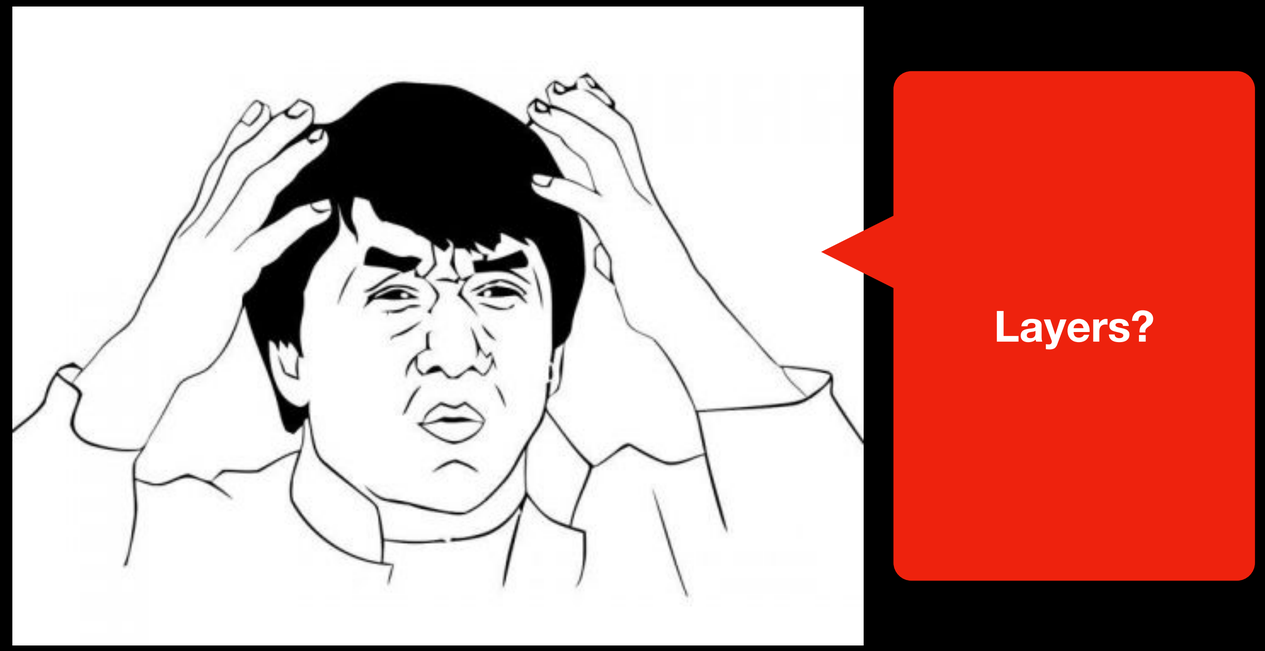
Second day

First task

- Project:
  - /
    - service-x
      - ServiceXImpl.java
    - service-xy
      - ServiceXYImp.java

Second day
First task

- me:



Second day

First task

- me thinking:
  “ok, it’s my second day, I should just try to not look like a fool”

Second day
First task

- PullRequest

```
ServiceXImpl.java

@Inject
ServiceXYImpl xyService
…
final XY xy = xyService.call();
result.setXY(xy);
…
```

Second day

First task

- REASON:
  services from X may not call services from Y directly. You should Inject the interface of Type C to call this function

Second day

Evening

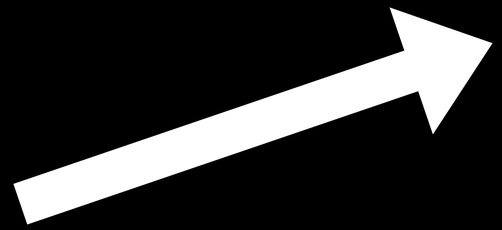
How to prevent this?

How to prevent this?

- Structure
- Tests

Structure
Project Structure

- /
  - domain-model
  - domain
  - application
  - infrastructure
    - adapterX
    - adapterY



maven

```
<dependencies>
  <dependency>
    <groupId>${project.groupId}</groupId>
    <artifactId>domain</artifactId>
  </dependency>
</dependencies>
```

No use of classes from ‘application’ possible

Structure

Package Structure

- /
  - com.sample.domain.model
  - com.sample.domain.services
  - com.sample.application
  - com.sample.infrastructure
  - com.sample.infrastructure.adapter.x
  - com.sample.infrastructure.adapter.y

More screaming, but nothing prevents me from using classes from ‘evil’ packages

Tests

Architecture Tests

- Examples:
  - ArchUnit
  - jQAssistant

Tests

Sample with ArchUnit

```
@ArchTest
static final ArchRule onion_architecture_is_respected = onionArchitecture()
        .domainModels("..domain.model..")
        .domainServices("..domain.service..")
        .applicationServices("..application..")
        .adapter("cli", "..adapter.cli..")
        .adapter("persistence", "..adapter.persistence..")
        .adapter("rest", "..adapter.rest..");
```

Tests

Sample with ArchUnit

```
@ArchTest
static final ArchRule services_should_not_access_controllers =
        noClasses().that().resideInAPackage("..service..")
                .should().accessClassesThat().resideInAPackage("..controller..");
```

Tests

Other conventions

```
@ArchTest
static ArchRule services_should_be_prefixed =
        classes()
                .that().resideInAPackage("..service..")
                .and().areAnnotatedWith(MyService.class)
                .should().haveSimpleNameStartingWith("Service");
```

Second day, other company :-)

Same task, same mistake

- Tests fails, saying:
  “Classes within package x may not call classes from xy, because …”

Fail “fast”
and precise:-)

Conclusion


Her: He's probably thinking of other girls
Him: Now I could think of other girls, but I won't
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Conclusion

- Make your architecture clean (and scream)
- Make your architecture obvious

Always think: would this be clear to me if I was the new guy in the team?

Thank you

- Questions?

Links

- Screaming architecture: https://blog.cleancoder.com/uncle-bob/2011/09/30/Screaming-Architecture.html
- ArchUnit: https://www.archunit.org/
- jQAssistant: https://jqassistant.org/