

Hexagonal Architecture



CODESAI

How does good
design looks like?



**A good design
must support
evolution**



**A good design
must be testable**



Any design imposes
constraints on how we
can change the code



A Pit of Success

“A well-designed system makes it easy to do the right things and annoying (but not impossible) to do the wrong things.”

Jeff Atwood



Some architectures
are **pits of success**
and all of them are
testable



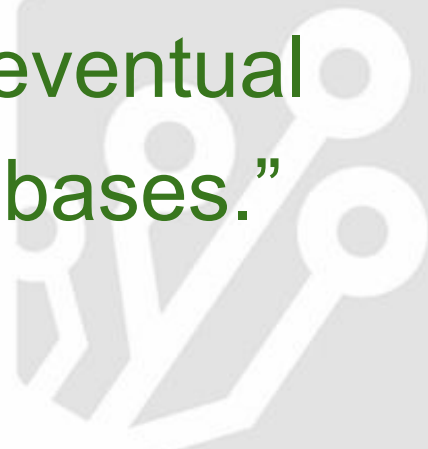
Hexagonal Architecture or Ports & Adapters



Ports & Adapters: Goal

“Allow an application to equally be driven by users, programs, automated test or batch scripts, and to be developed and tested in isolation from its eventual run-time devices and databases.”

Alistair Cockburn



Ports

- It makes the **application domain model central** to the system and **isolates** its definition from the program's technical infrastructure
- The application domain model includes **interfaces (ports)** that define its relationships with the outside world in terms of application domain concepts
- All input and output reaches/leaves the app through a port



Adapters

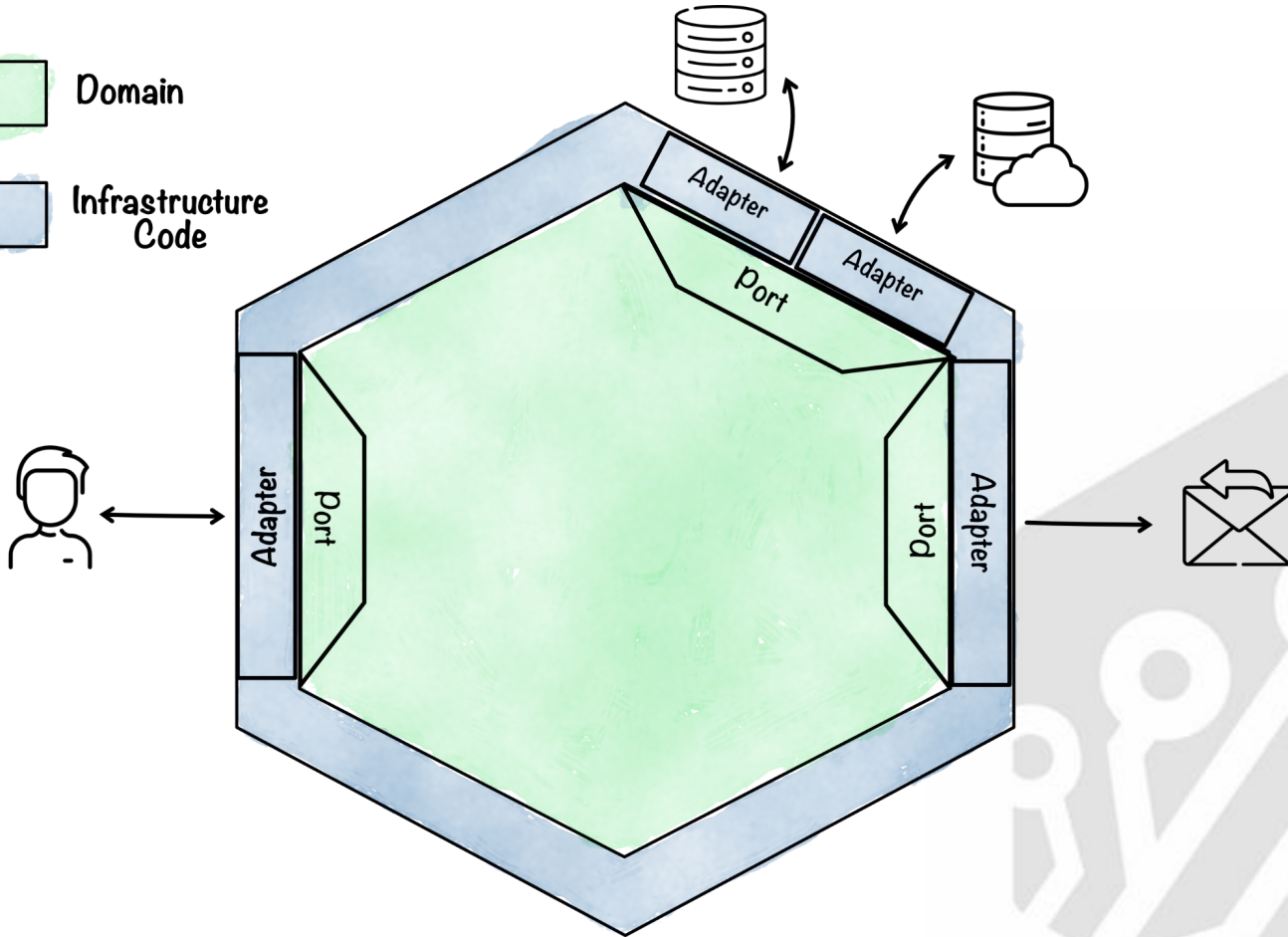
- These **interfaces are implemented by objects** that translate the application domain concepts onto an appropriate technical implementation
- These objects are called **adapters**



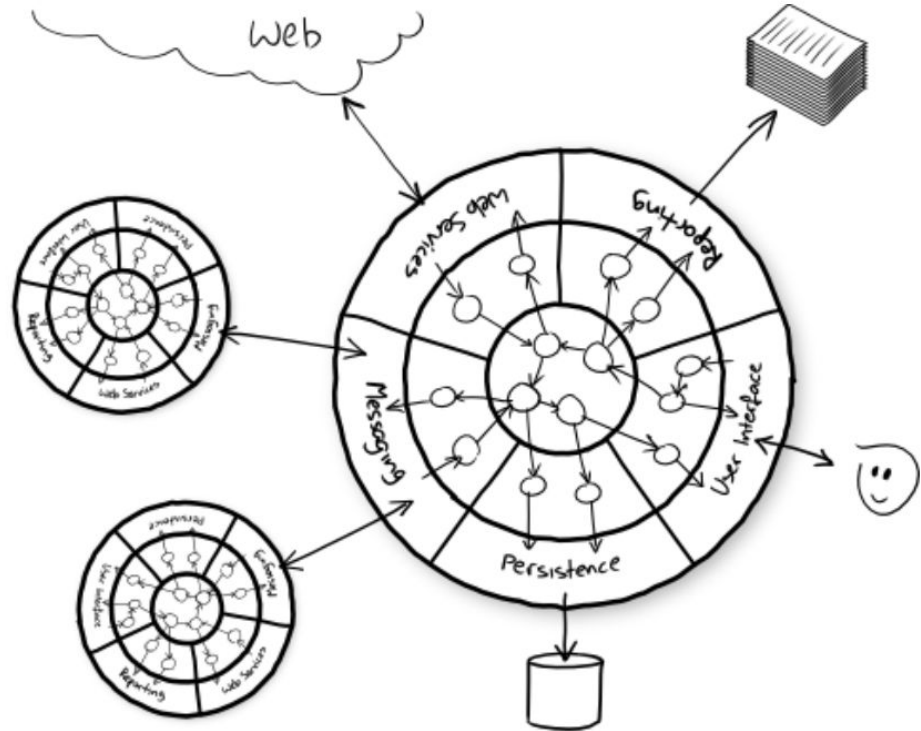
Hexagonal architecture

 Domain

 Infrastructure
Code



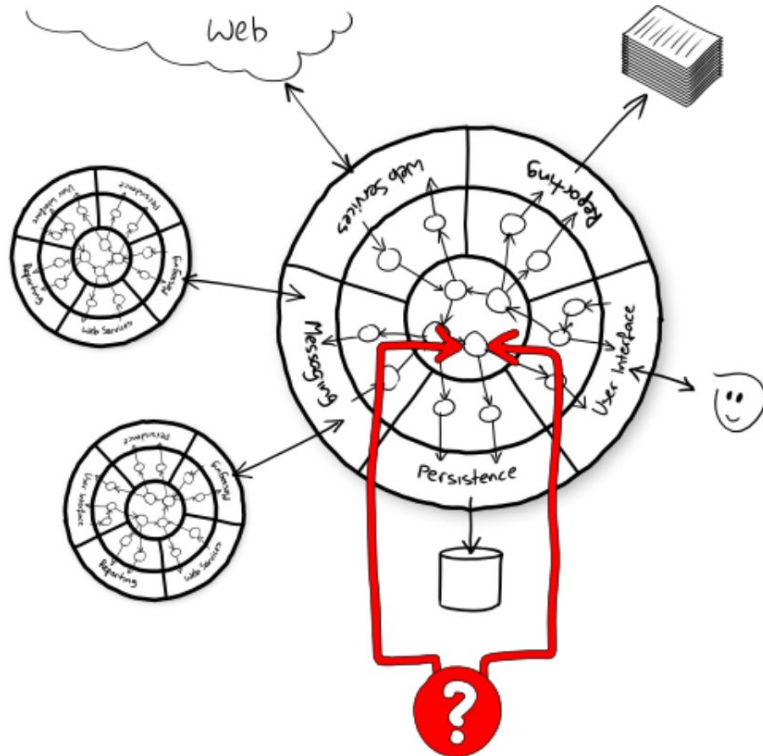
Effects on testing strategy



Clarification on test types

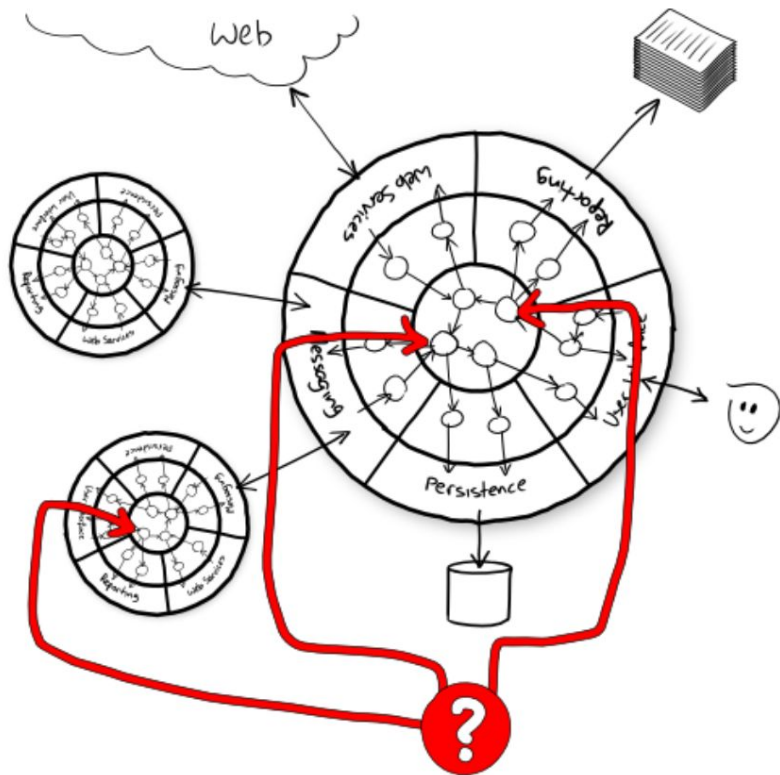
- **Unit:** It tests one behavior in isolation. In memory, in process and without involving shared resources.
- **Integration:** It tests the integration between layers of a system. It can involve external systems like a database, shared memory, etc.

Unit Tests



They exercise individual objects, value types or small clusters of objects within a single process

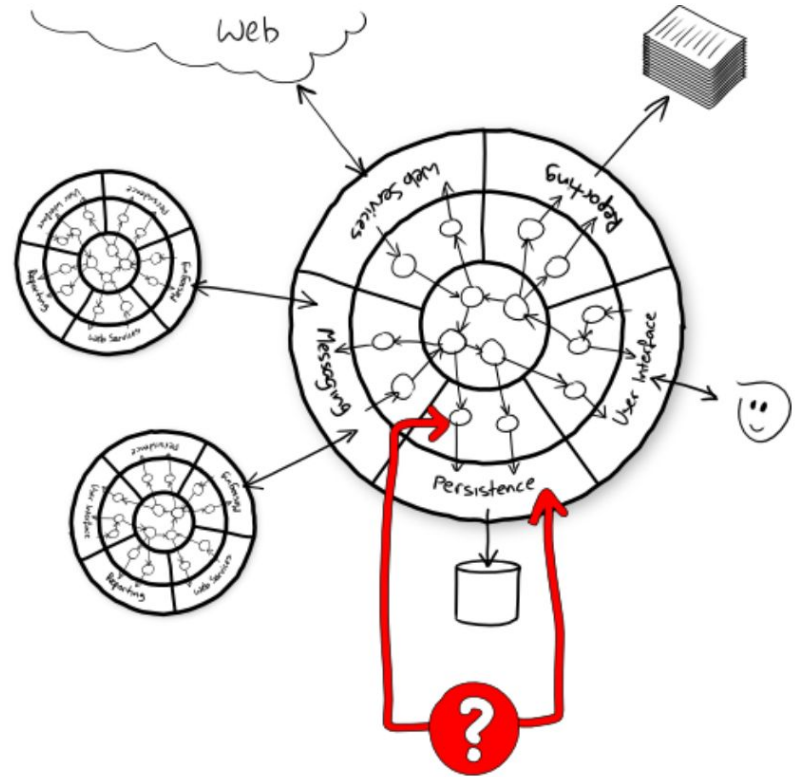
Acceptance Tests



- Customer-facing tests that checks the domain logic is correct
- **Can be unit tests** directly run against the domain model because it is cleanly decoupled from the technical infrastructure.

Integration Tests

They test an adapter to see if it correctly integrates with a third-party package.



To go deeper

