



Practical Java Testing Spring Boot





Somkiat Puisungnoen

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Intro

Software Craftsmanship

Software Practitioner at สยามชัมนาณกิจ พ.ศ. 2556

Agile Practitioner and Technical at SPRINT3r

Post Photo/Video Live Video Life Event

What's on your mind?

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Java and Bigdata



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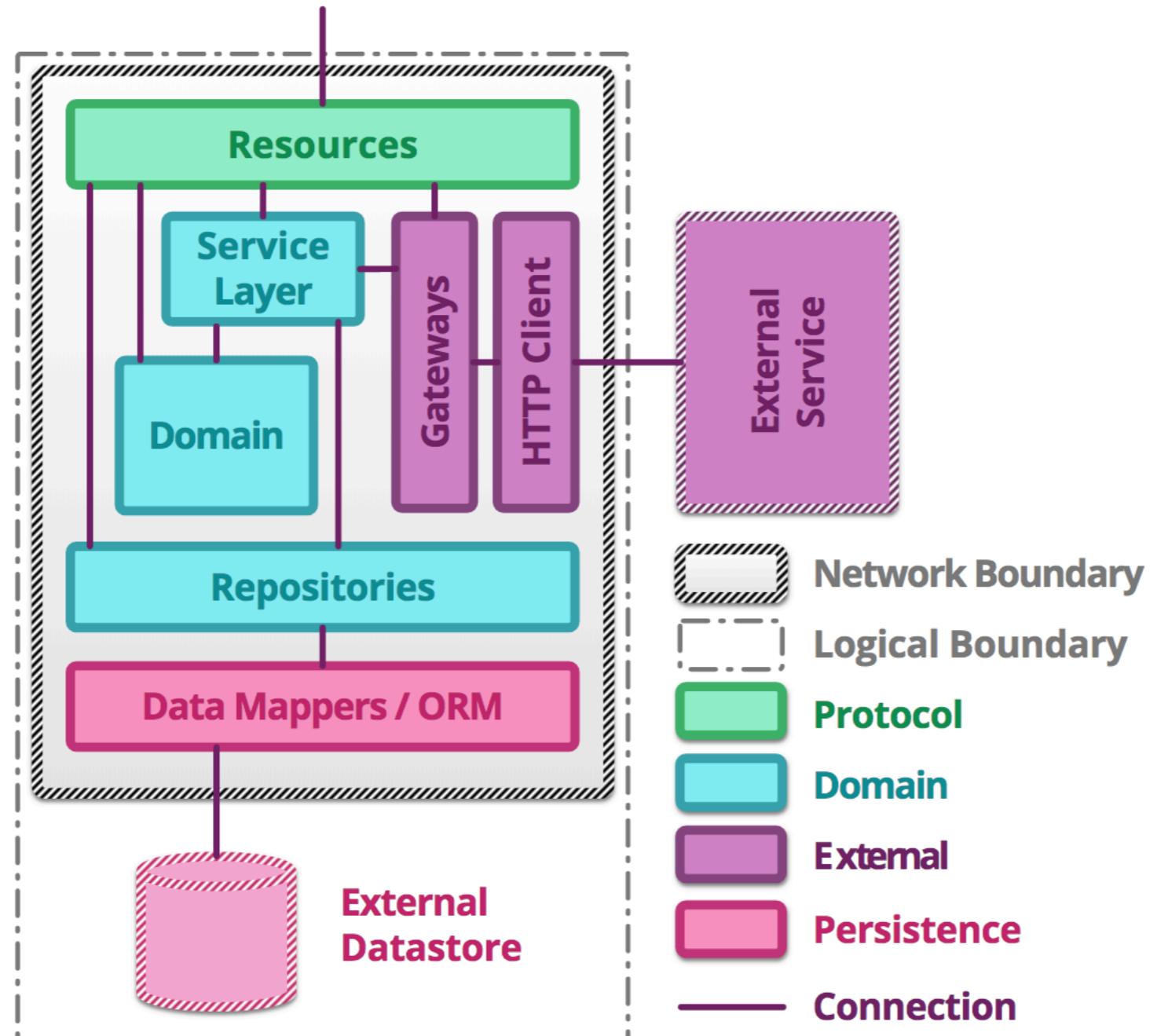
**[https://github.com/up1/
course-practical-java-testing-workshop](https://github.com/up1/course-practical-java-testing-workshop)**



Testing with Java



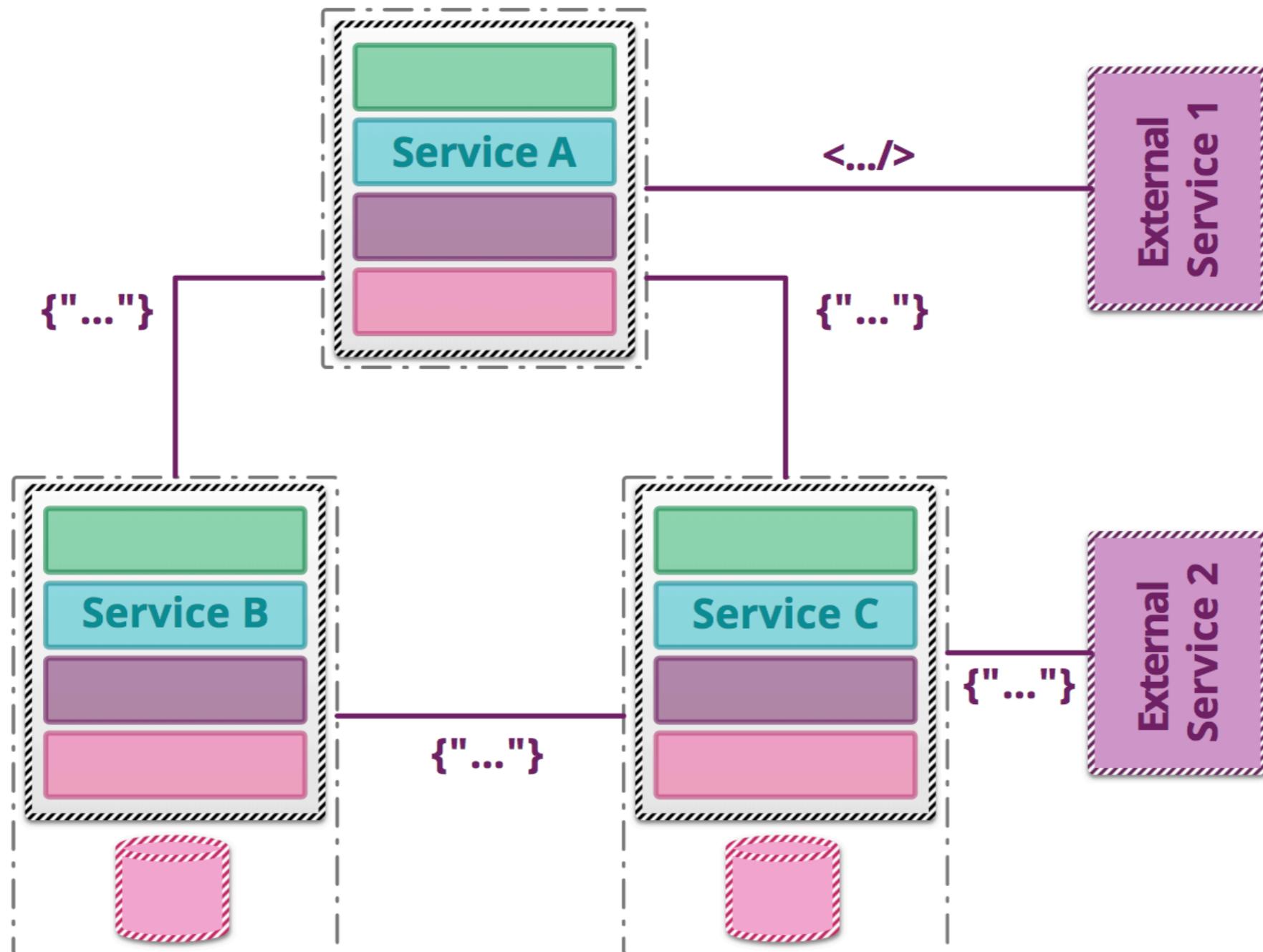
Service structure



<https://martinfowler.com/articles/microservice-testing>



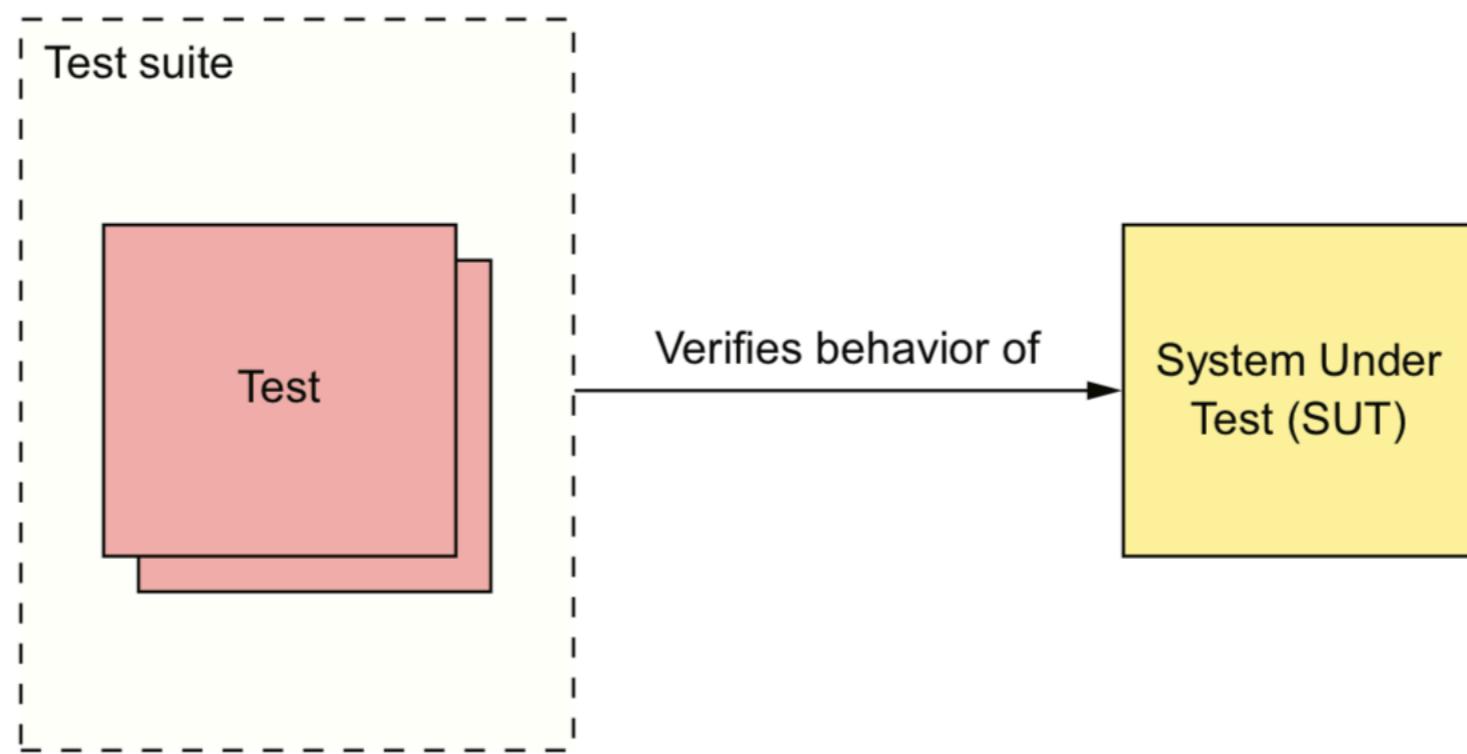
Multiple services



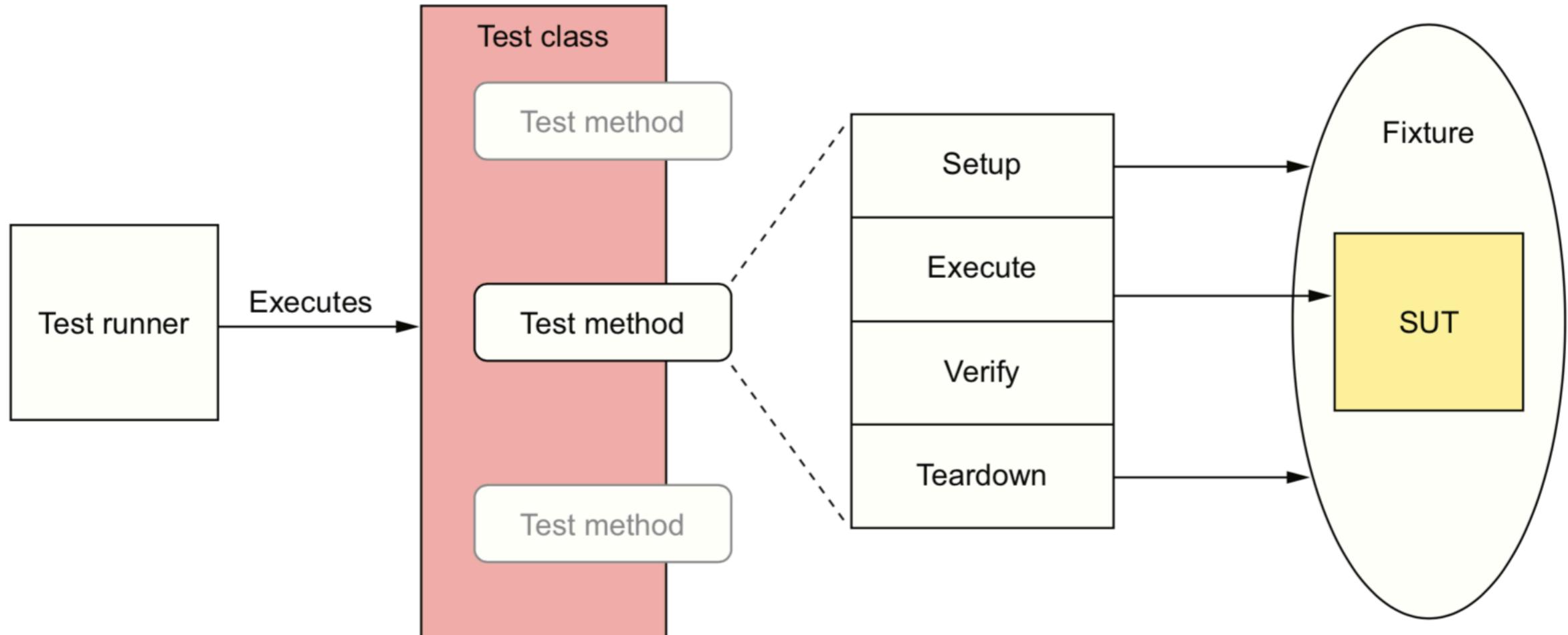
<https://martinfowler.com/articles/microservice-testing>



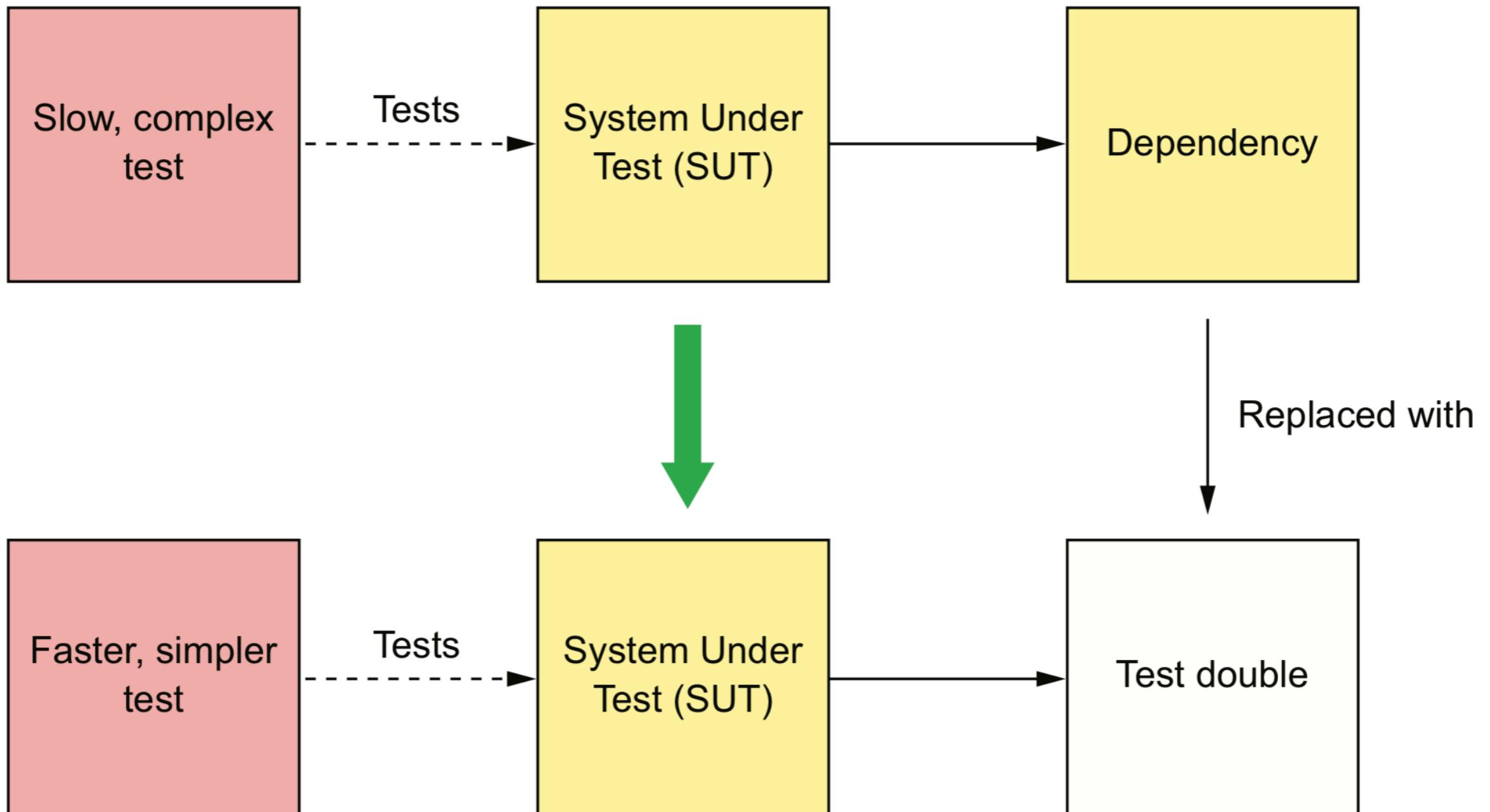
Testing



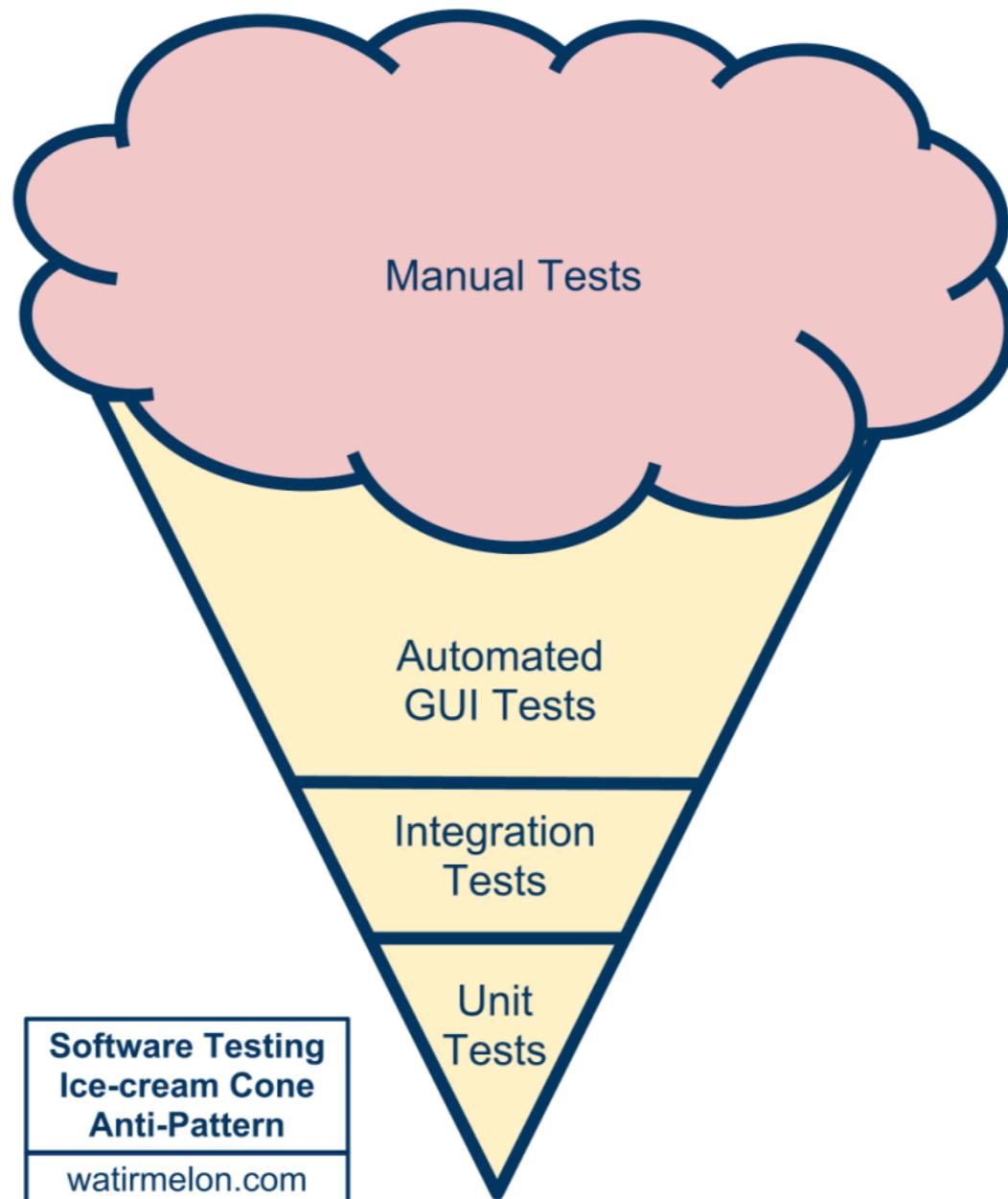
Structure of Automated tests



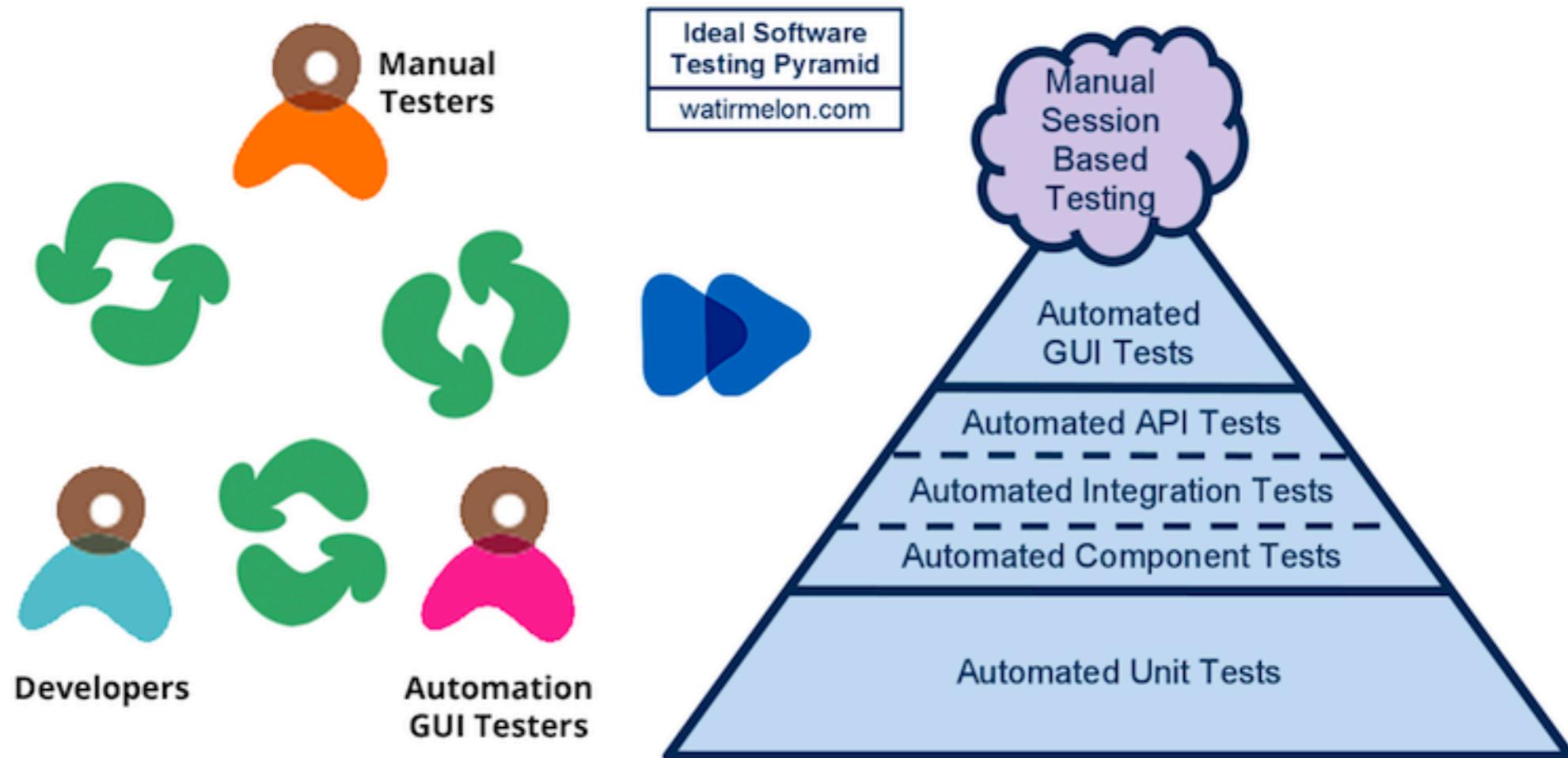
Working with Test double

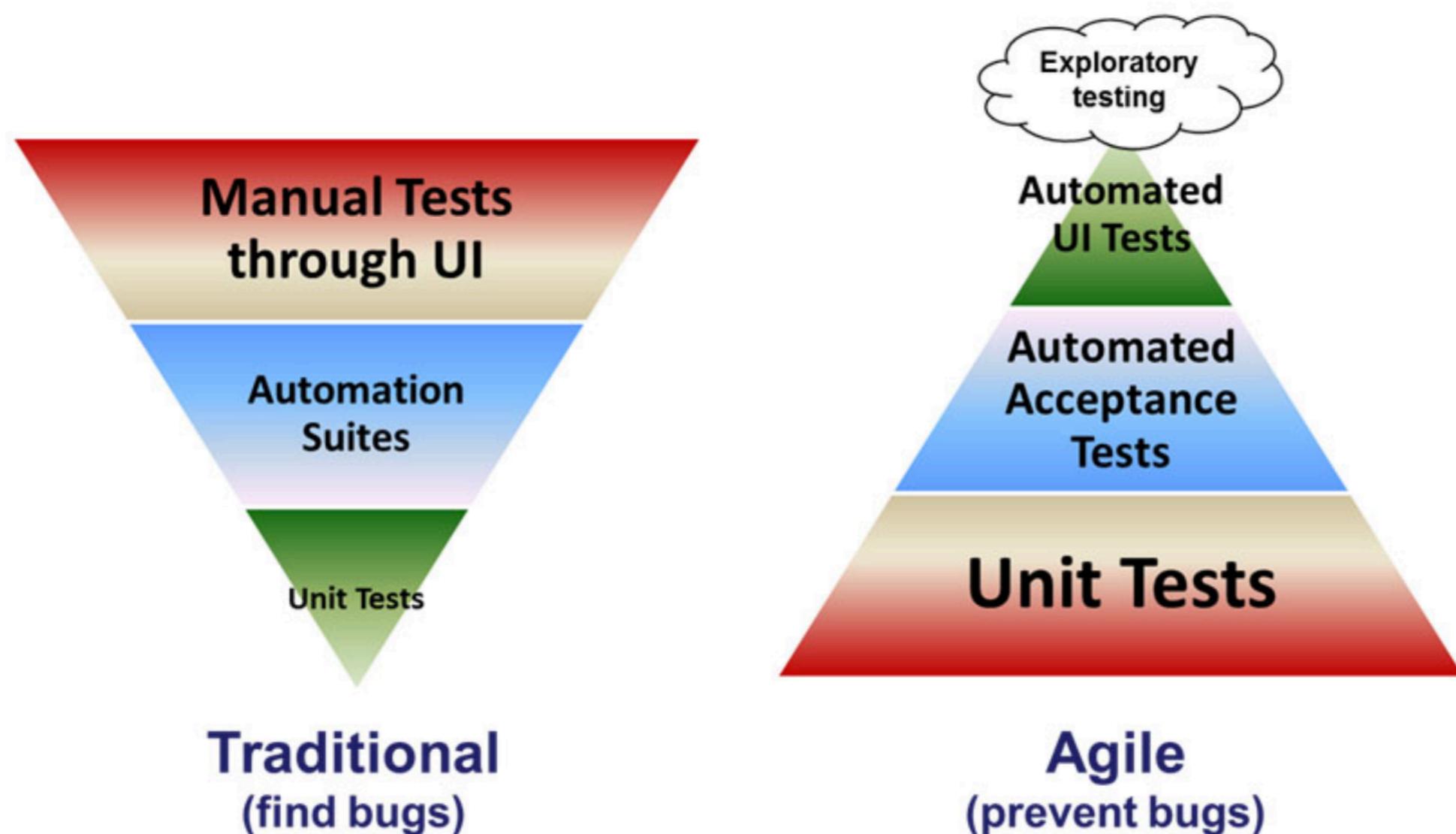


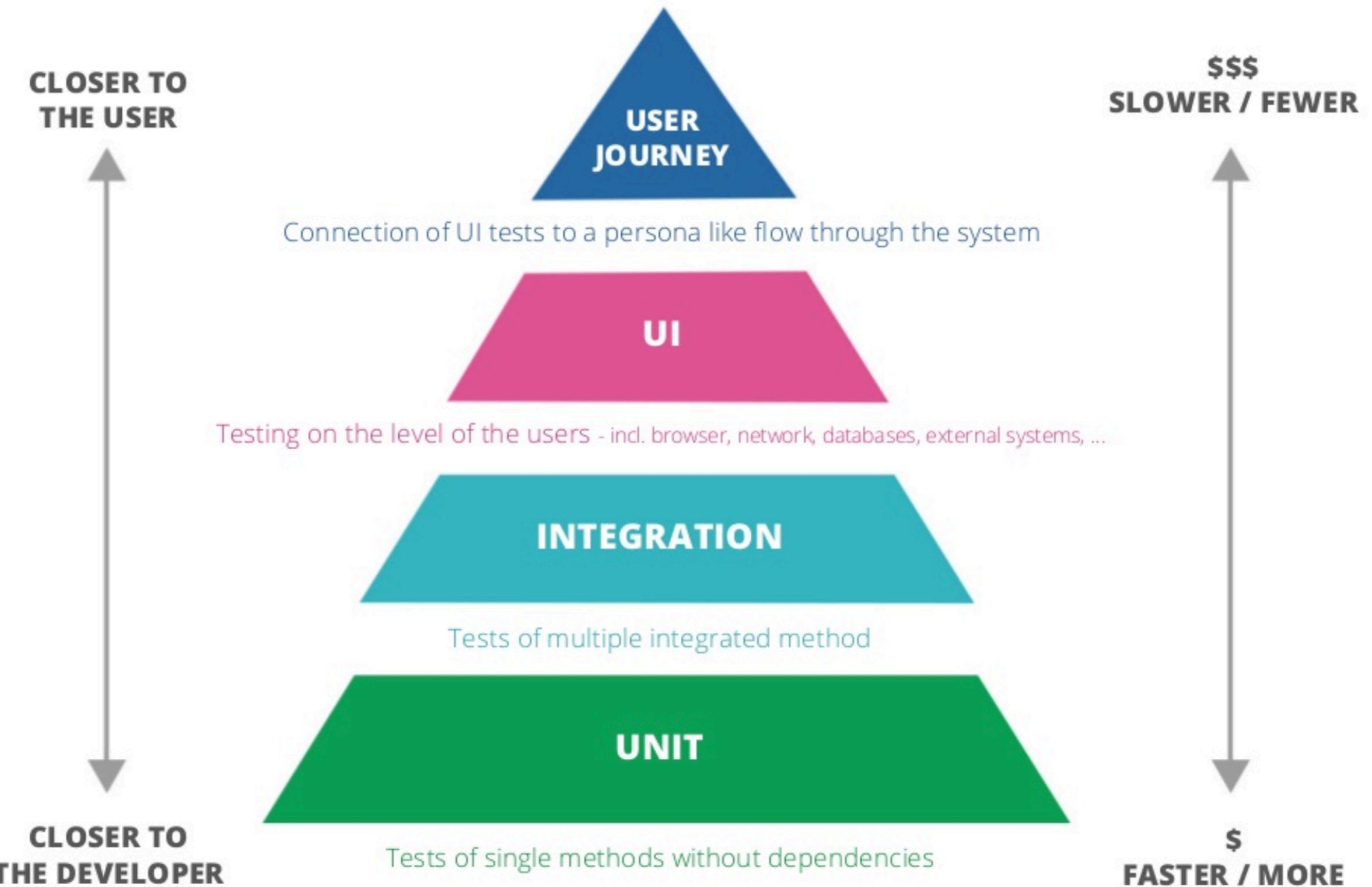
Ice-cream testing



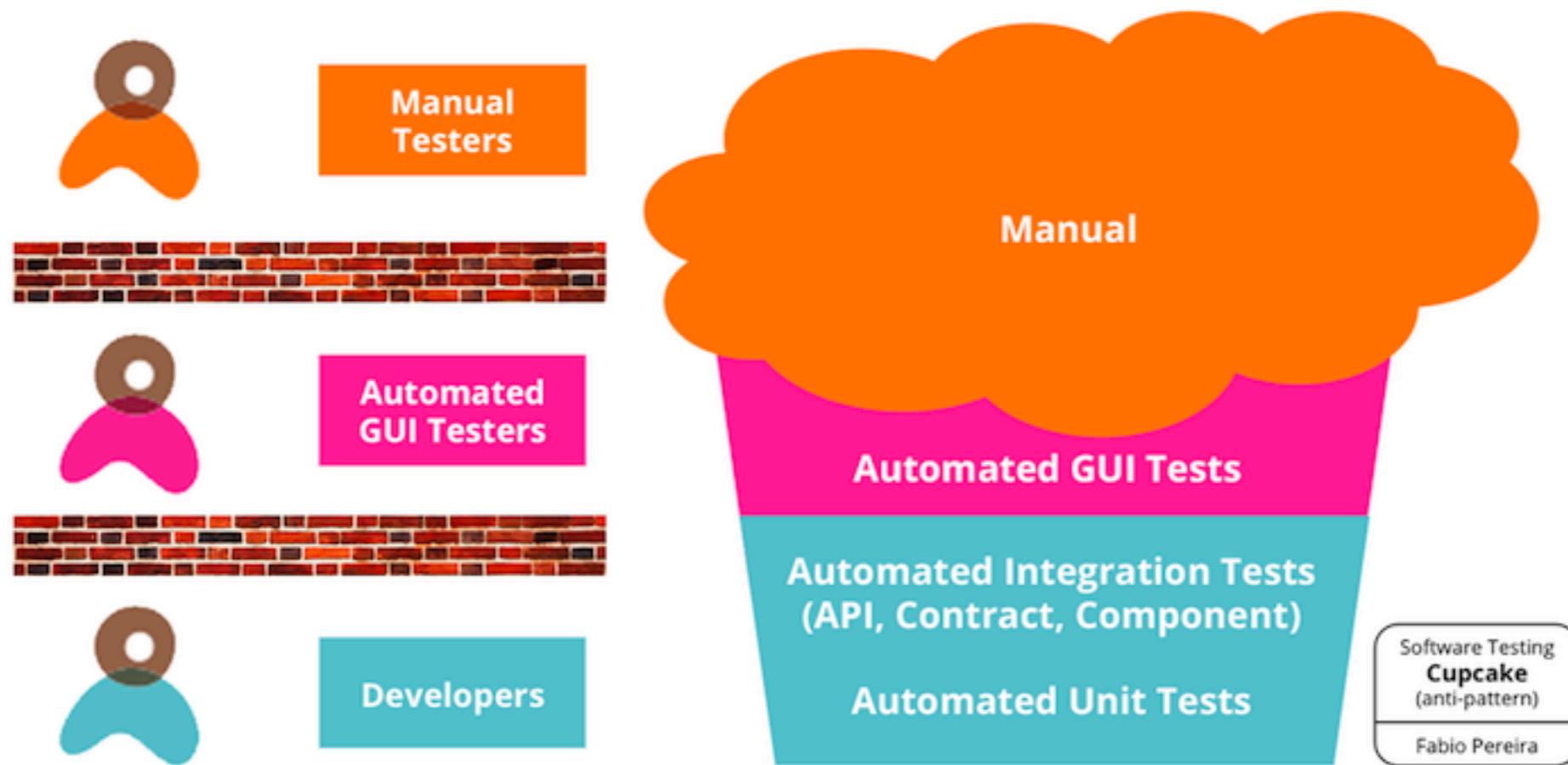
Pyramid testing



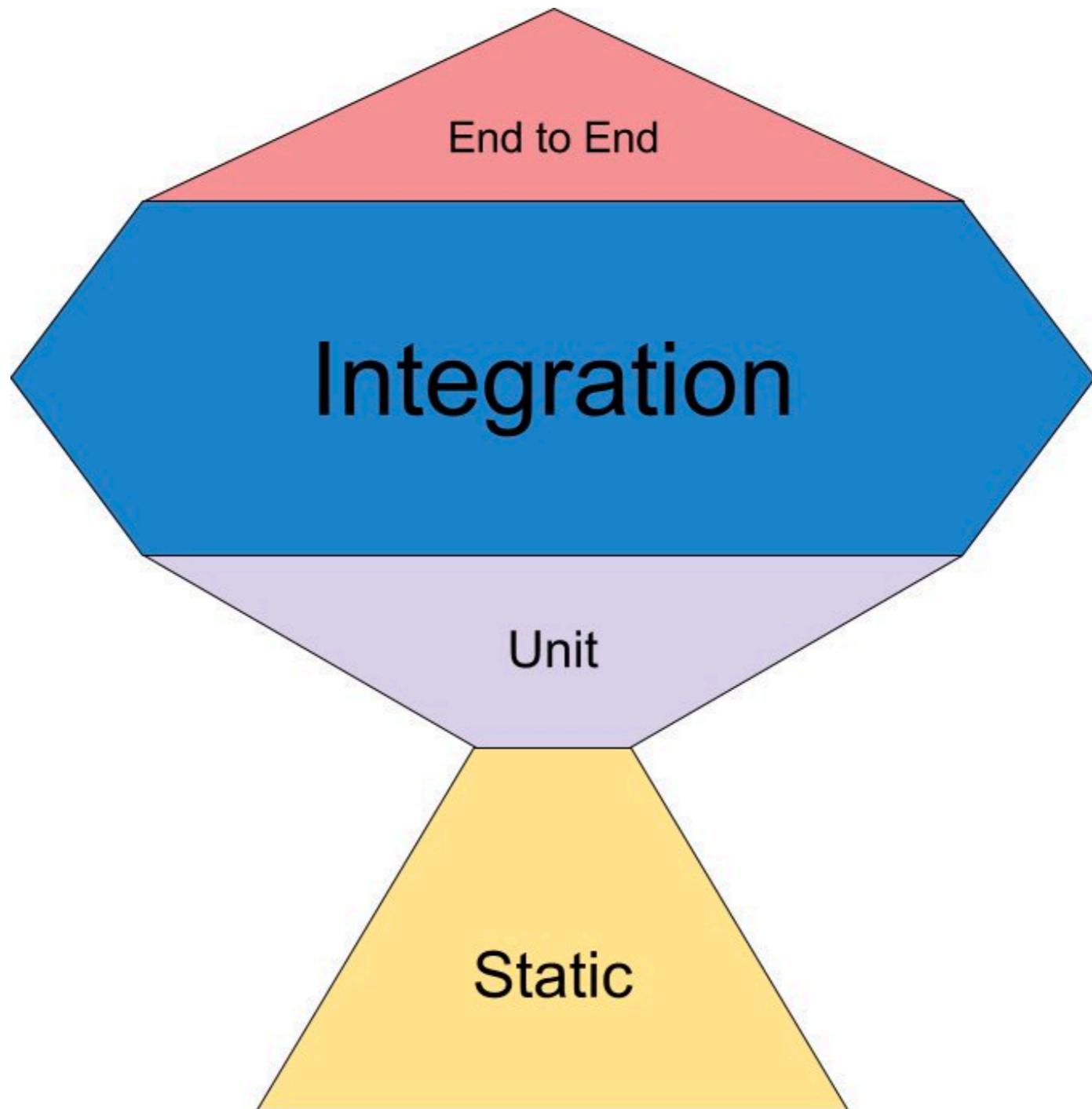




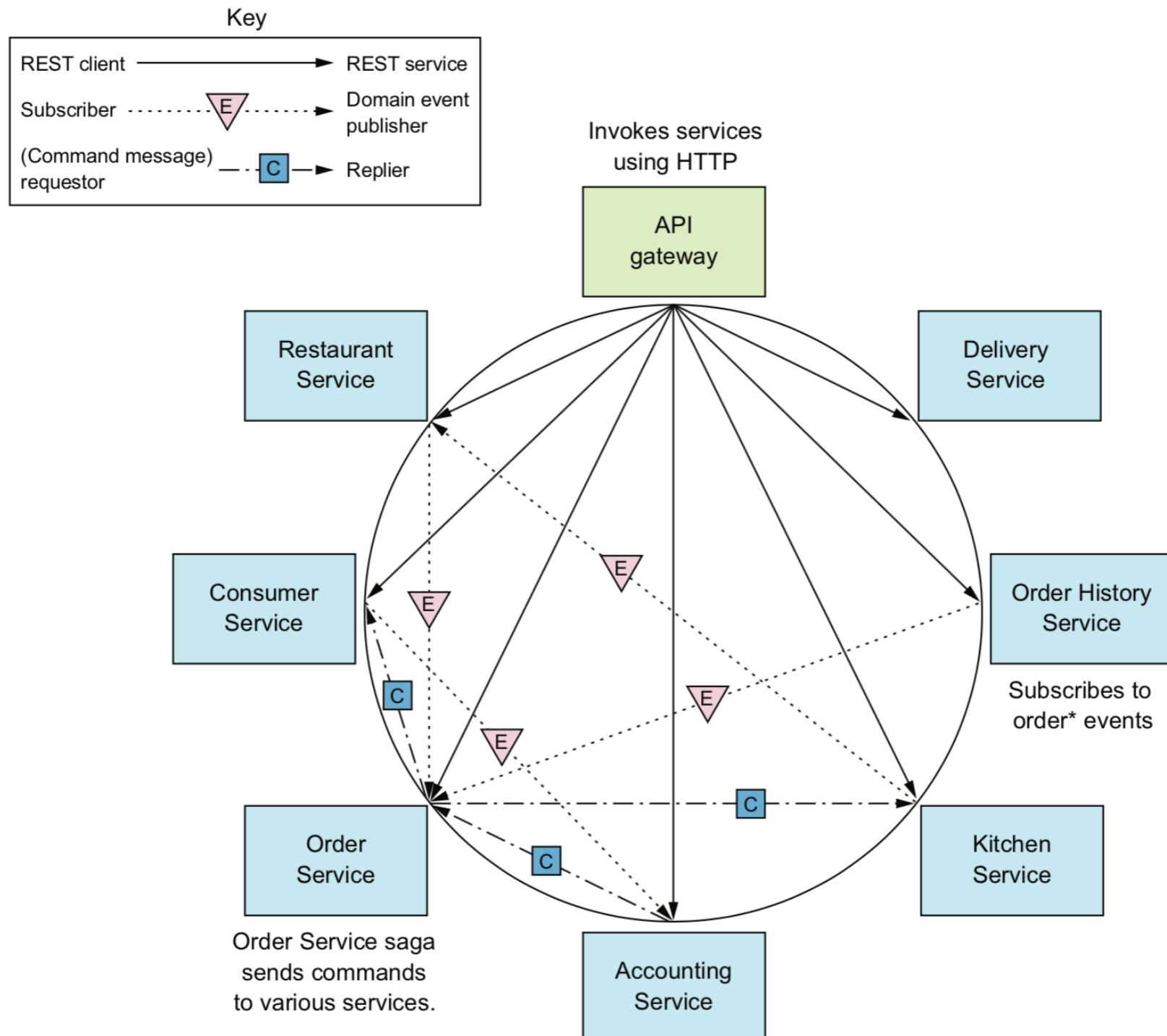
Cupcake testing



Trophy testing

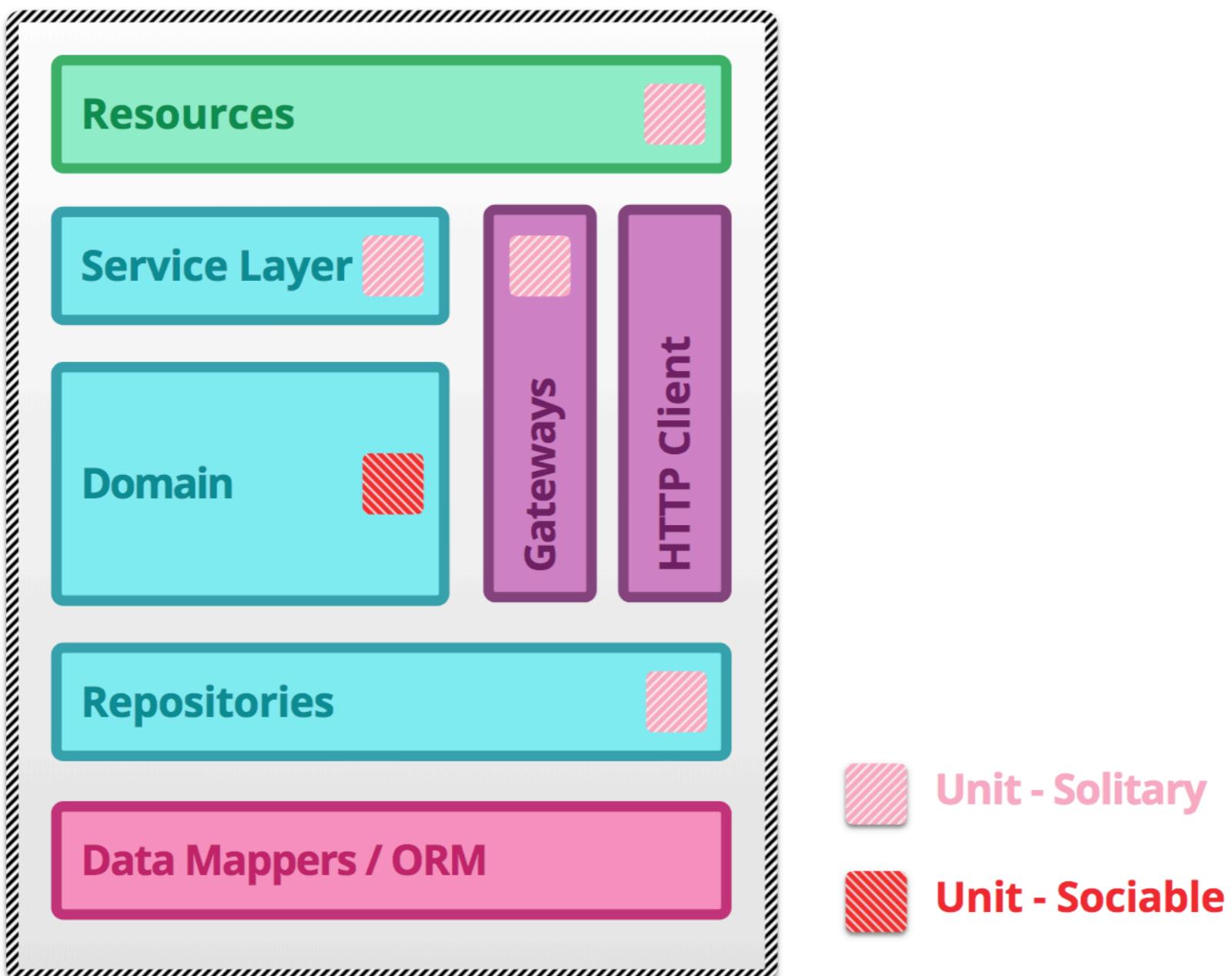


Testing Microservices ?

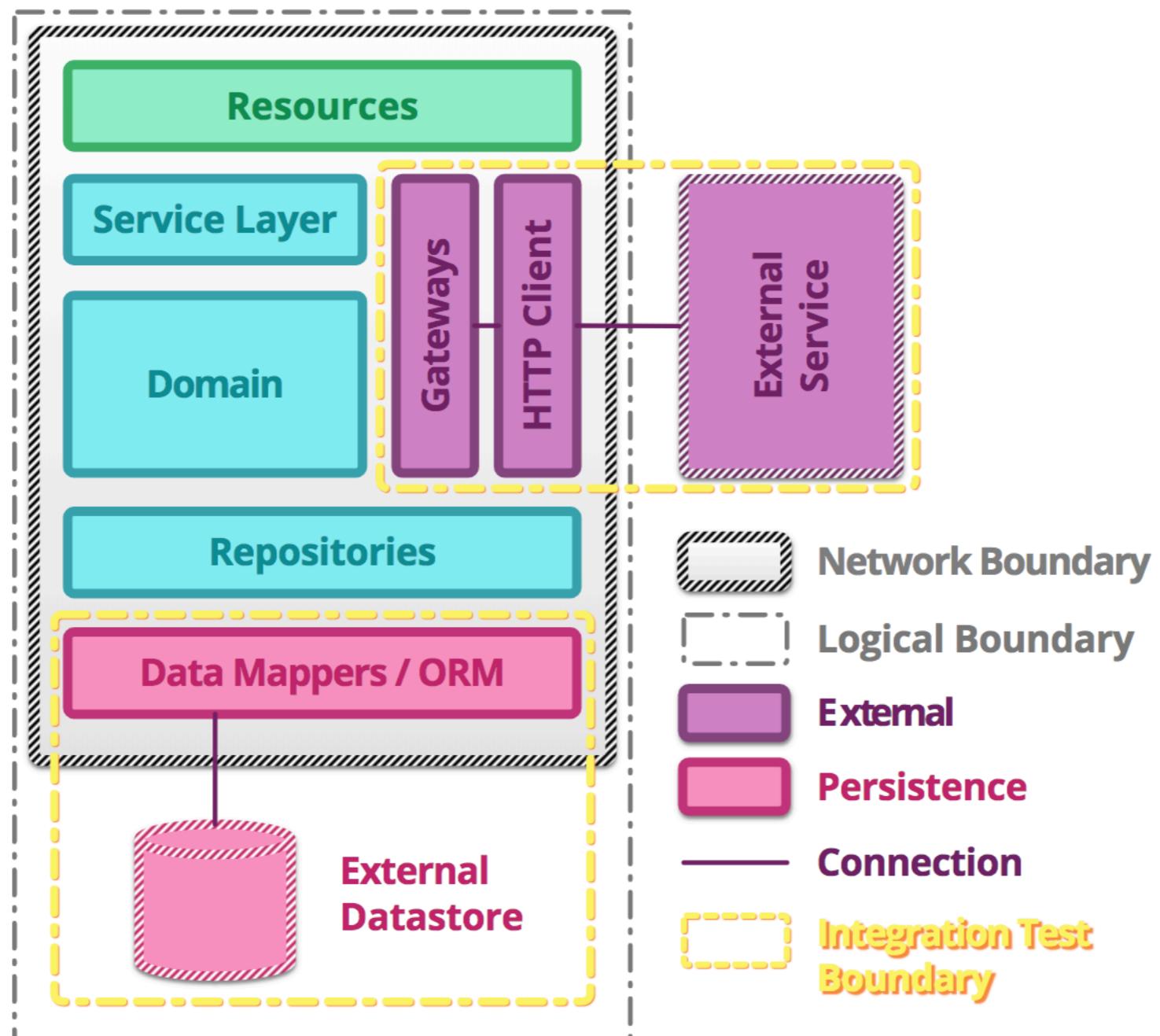




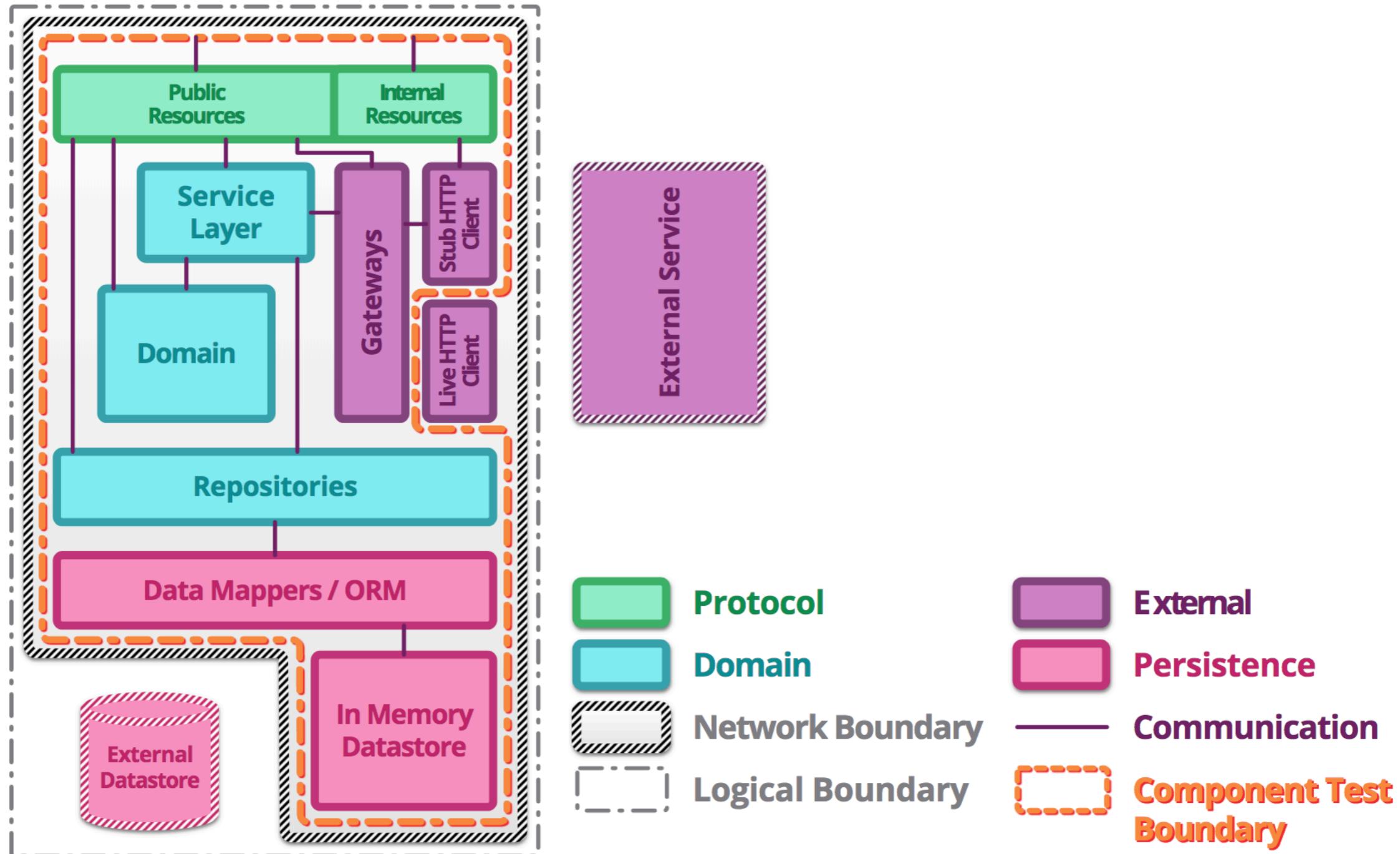
Unit testing



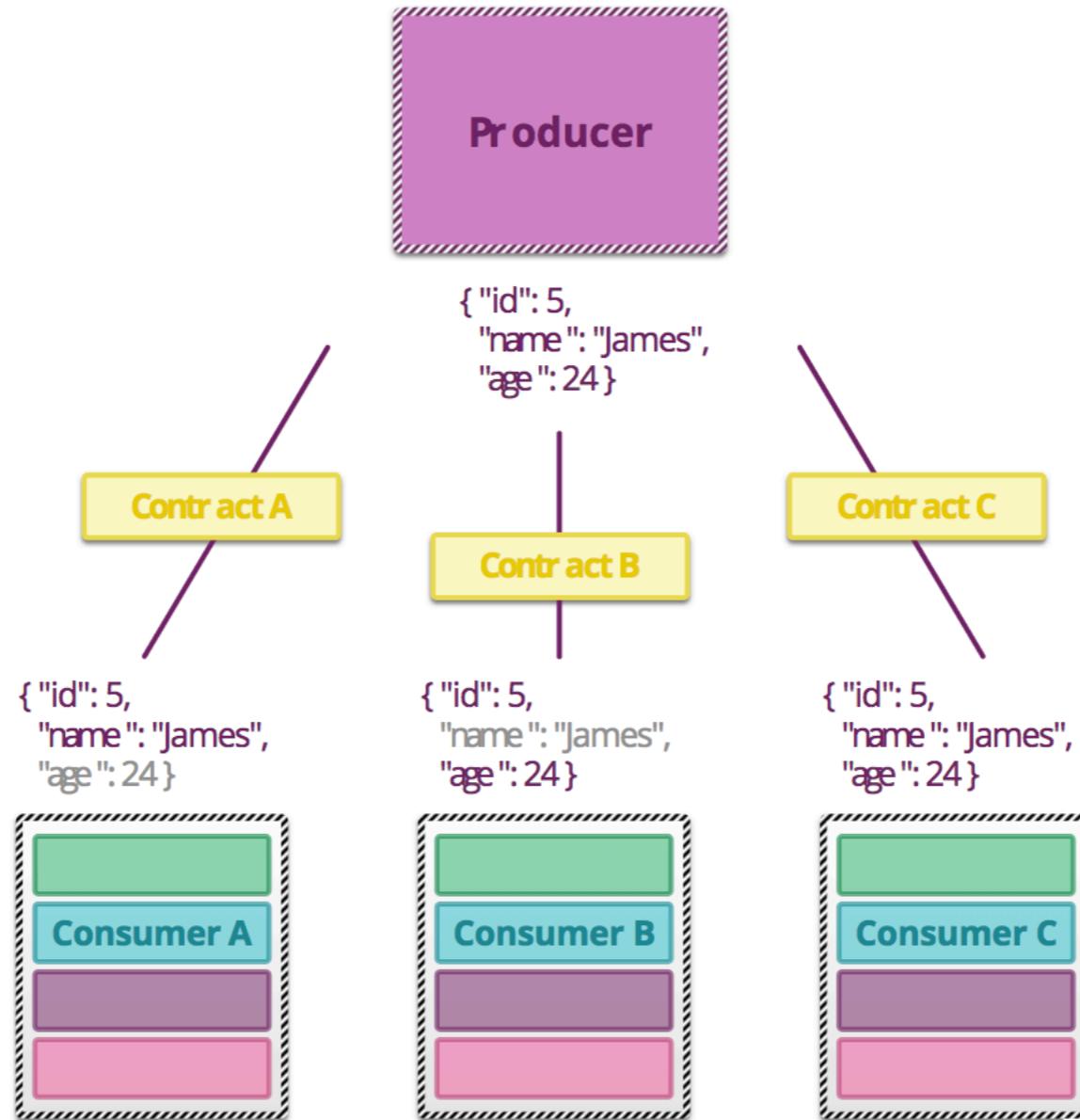
Integration testing



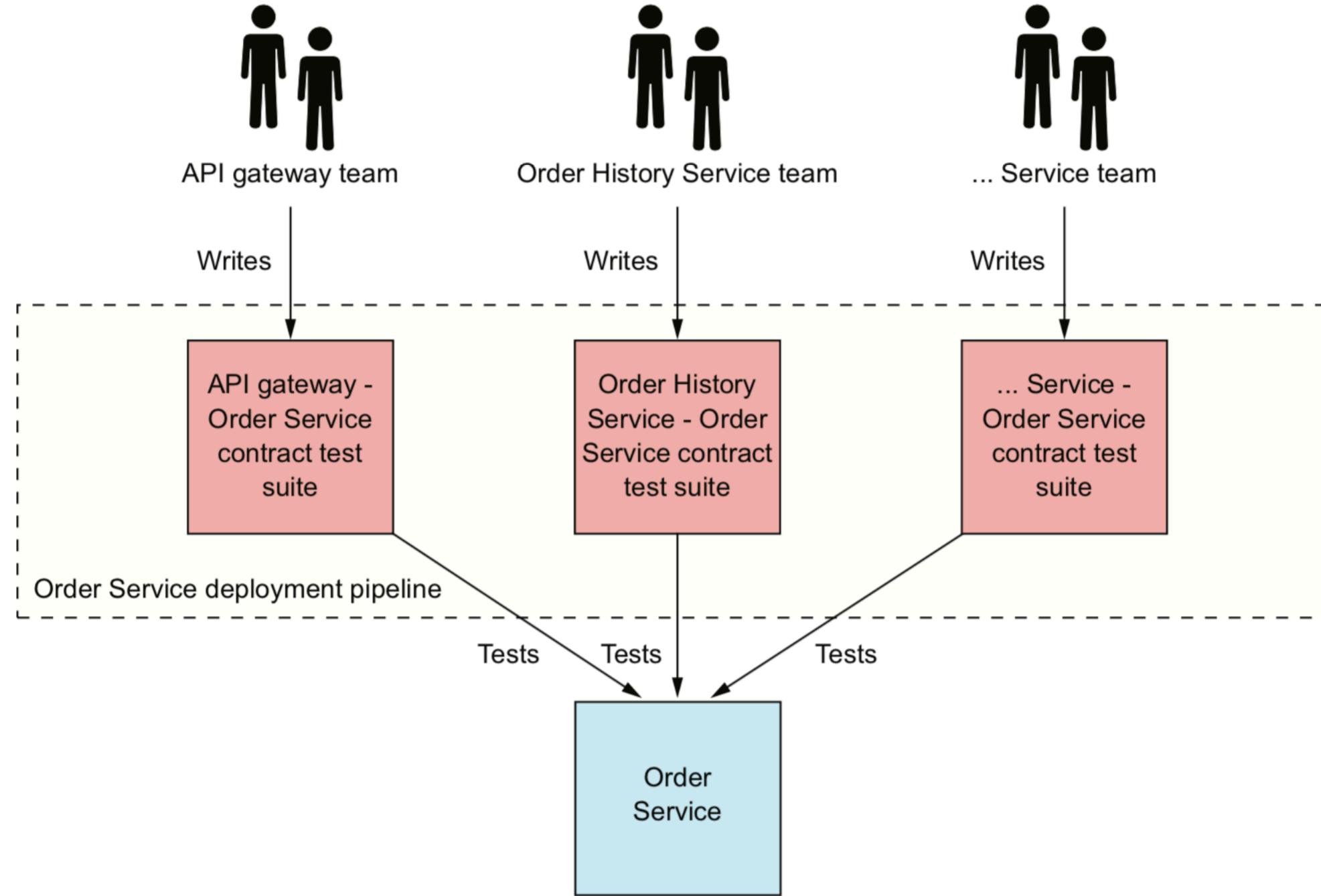
Component testing



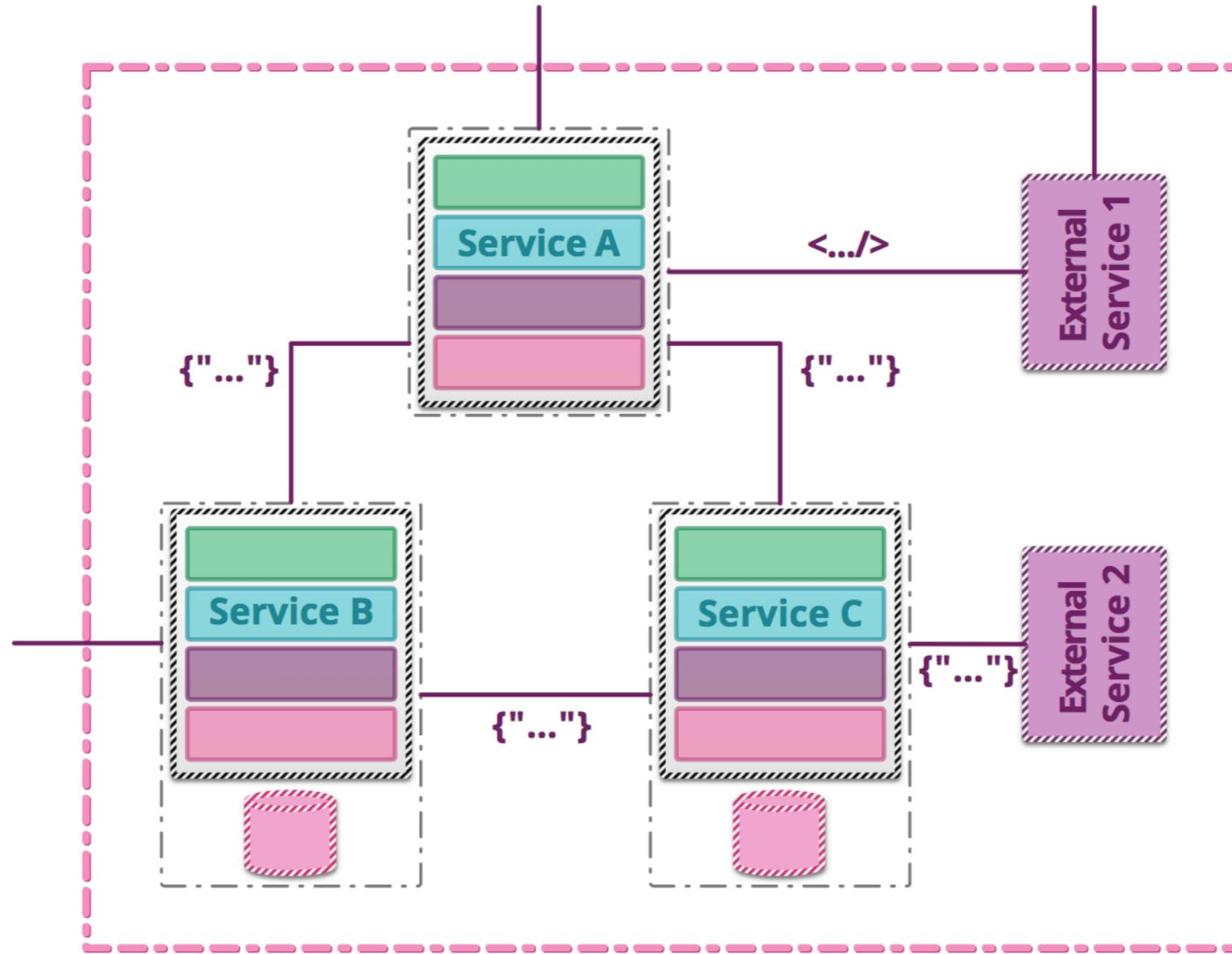
Contract testing



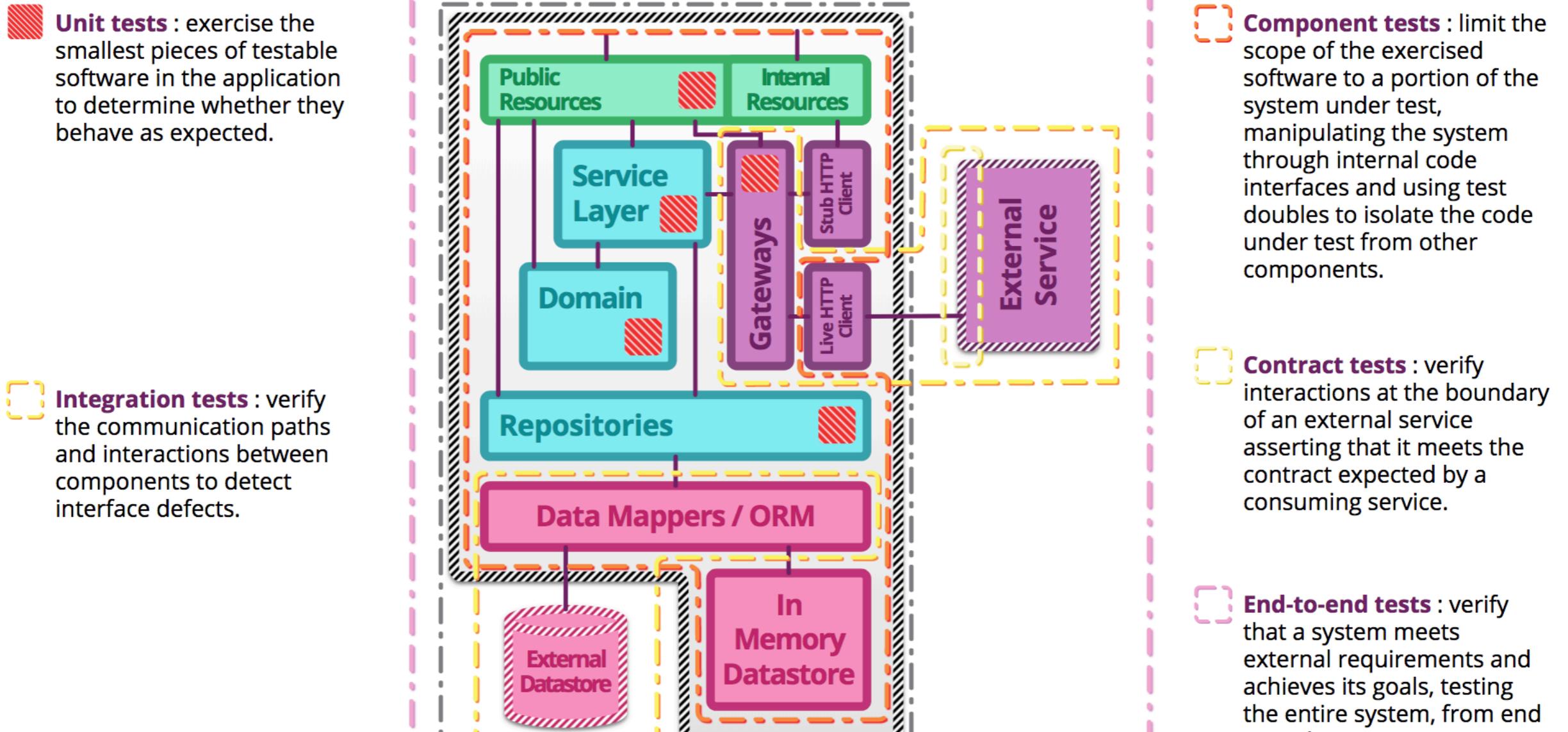
Consumer Contract testing



End-to-End testing



Summary



What is your testing strategy ?



Workshop



Testing with Java



Testing library



mockito



Test structure

Arrange Act Assert (AAA)

Arrange => setup, initial

Act => call target method

Assert => check with expectation



Good Unit Testing

F.I.R.S.T

Fast
Isolate, Independent
Repeatable
Self-validation
Thorough (cover all cases)



JUnit 5 features

@Test and @DisplayName

Parameterized test

Exception test

Assertion

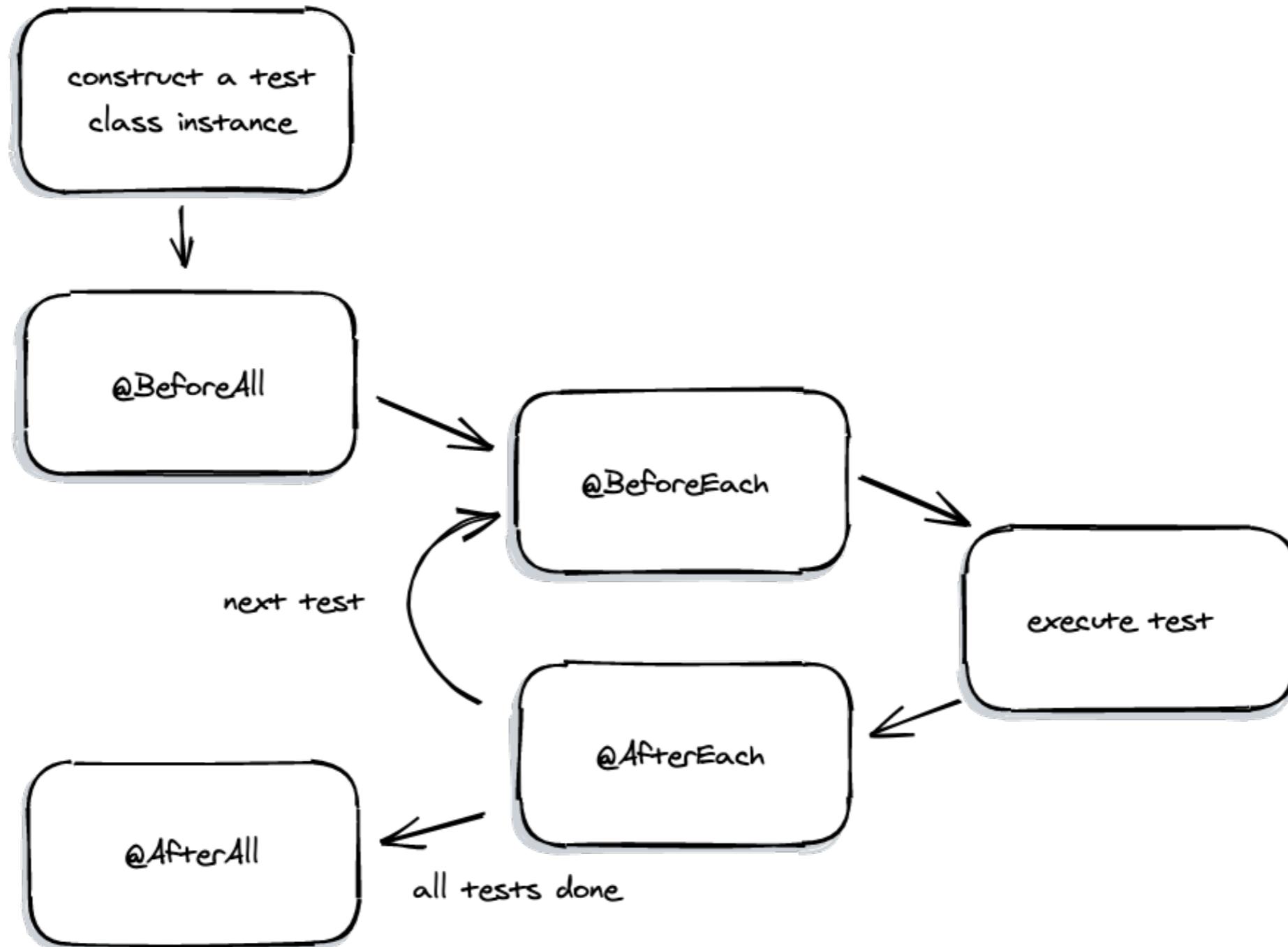
Tagging and Filter test

Parallel execution

<https://junit.org/junit5/>



JUnit test life cycle



Workshop



Test double

Dummy
Stub
Spy
Mock
Fake

https://en.wikipedia.org/wiki/Test_double



Working with Mockito

Stub
Spy
Mock

<https://site.mockito.org/>



Java testing workshop

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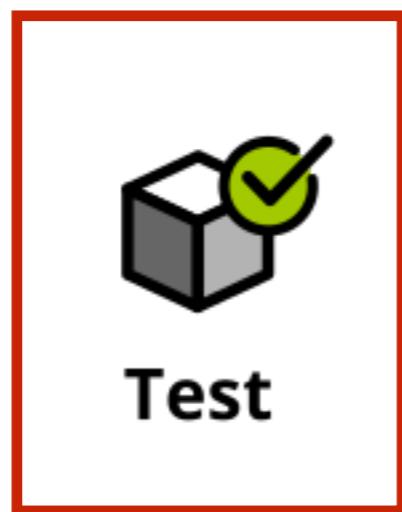
Workshop



Need automation



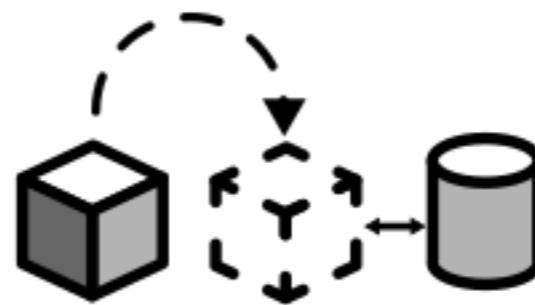
Build



Test



Provide
Infrastructure



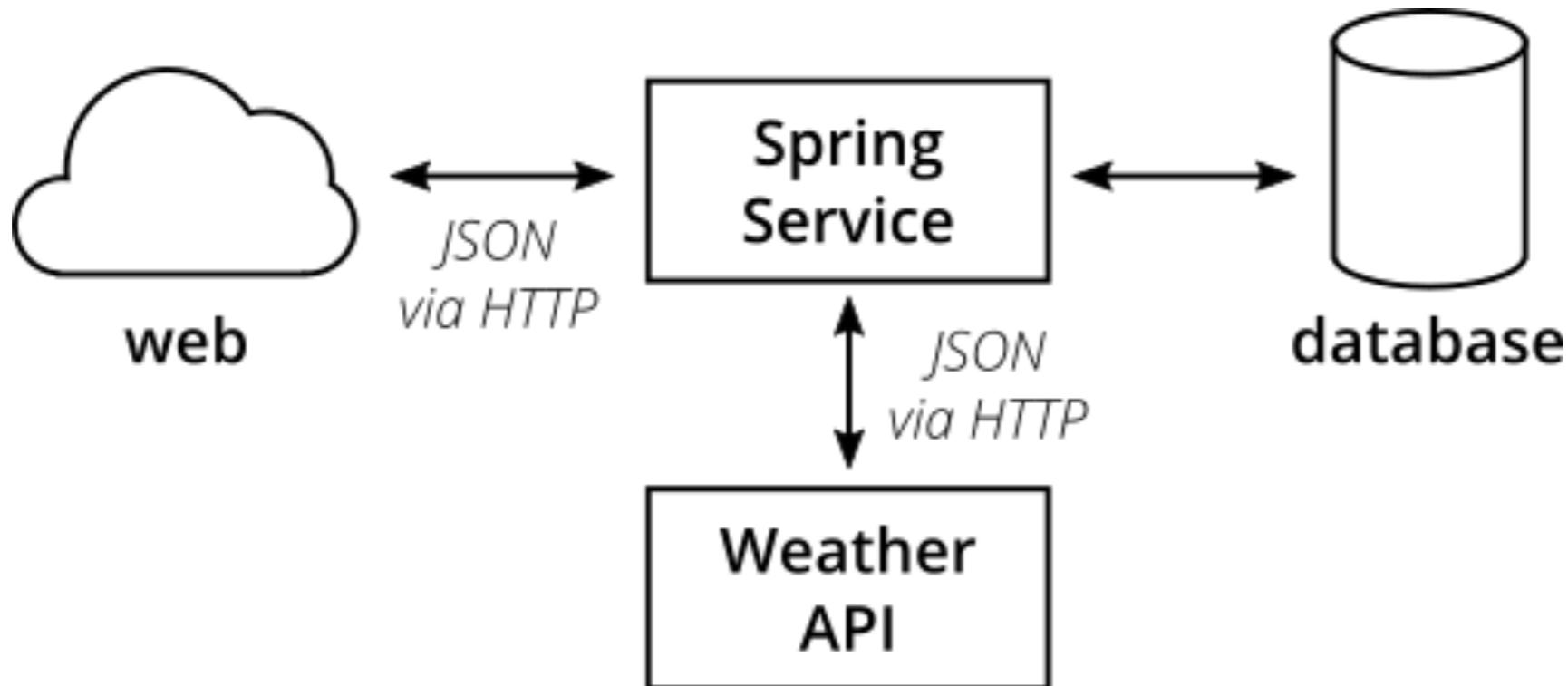
Deploy



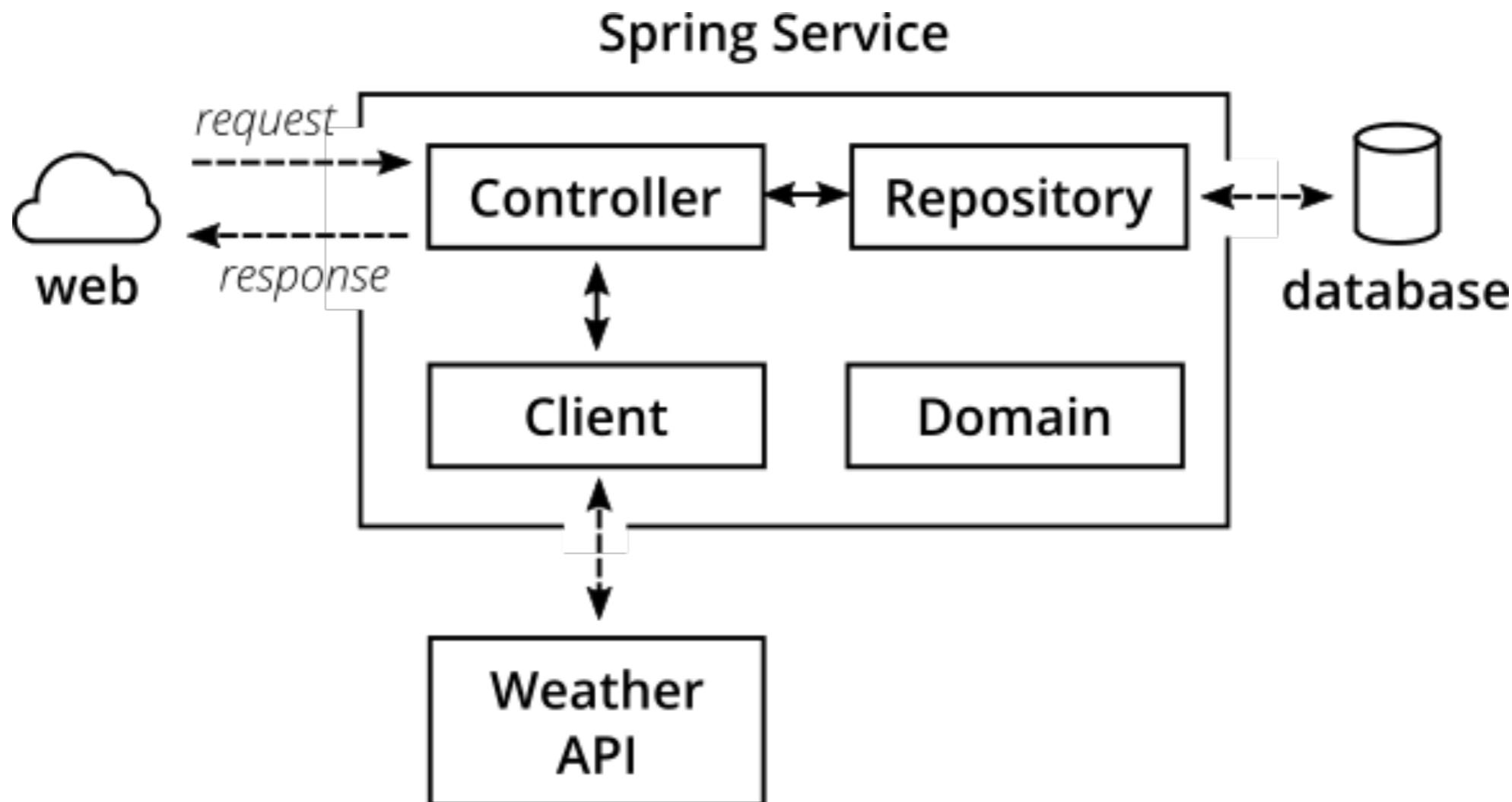
Test
More



Sample Application



Internal architecture



Endpoint of services

URL	Detail
<u>http://localhost:8080/hello</u>	Hello service
<u><a href="http://localhost:8080/hello/<lastname>">http://localhost:8080/hello/<lastname></u>	Get data from database
<u>http://localhost:8080/weather</u>	Get data from REST APIs



What to testing ?



What to testing ?

Unit testing

Integration testing

Component testing

Contract testing

End-to-End testing



How to testing ?



Depend on technology and tool



Working with Java

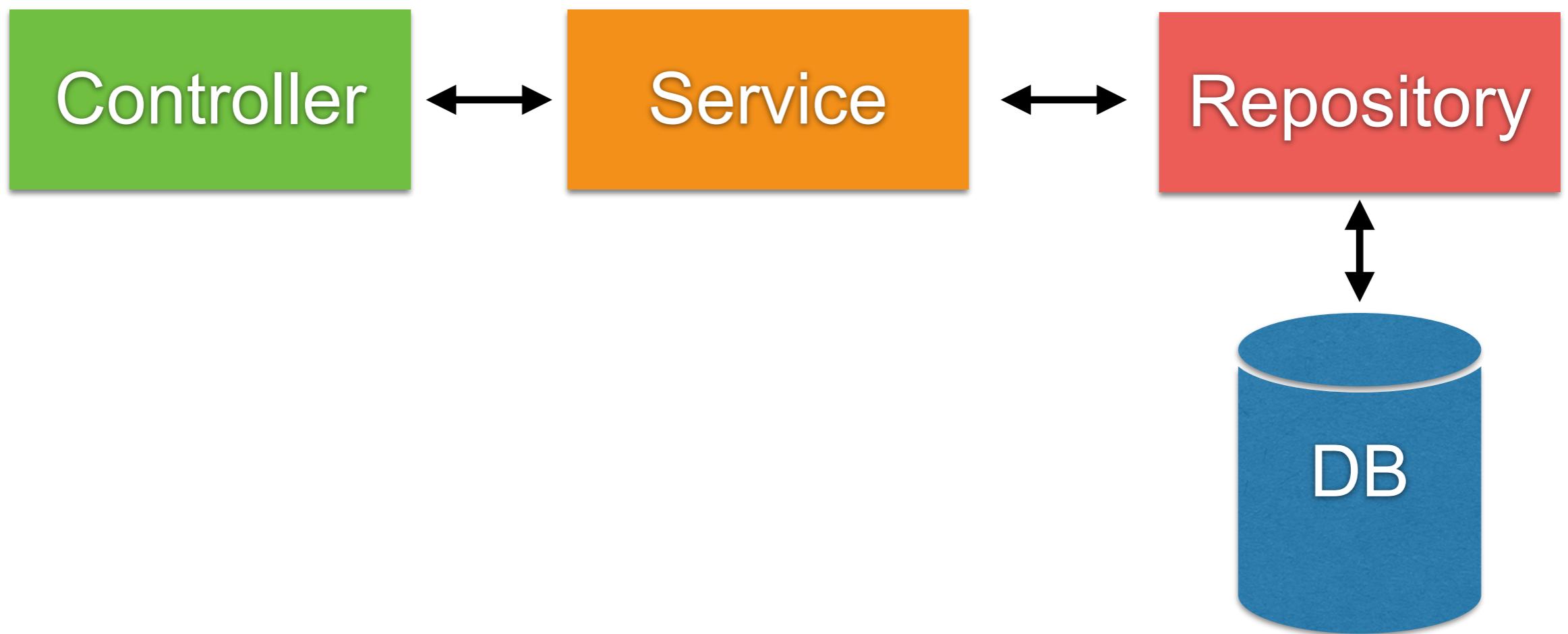
Testing type	Tools
Unit testing	JUnit, Mockito
Integration testing	Database, API mocking eg. WireMock, Stubby4J, MBtest
Component testing	JUnit, Mockito Database, API mocking
Contract testing	Pact, MBtest
End-to-End testing	UI testing and API testing eg. Selenium, Cypress, Postman



Workshop



What to test ?



What to test ?

Send request and read response of APIs

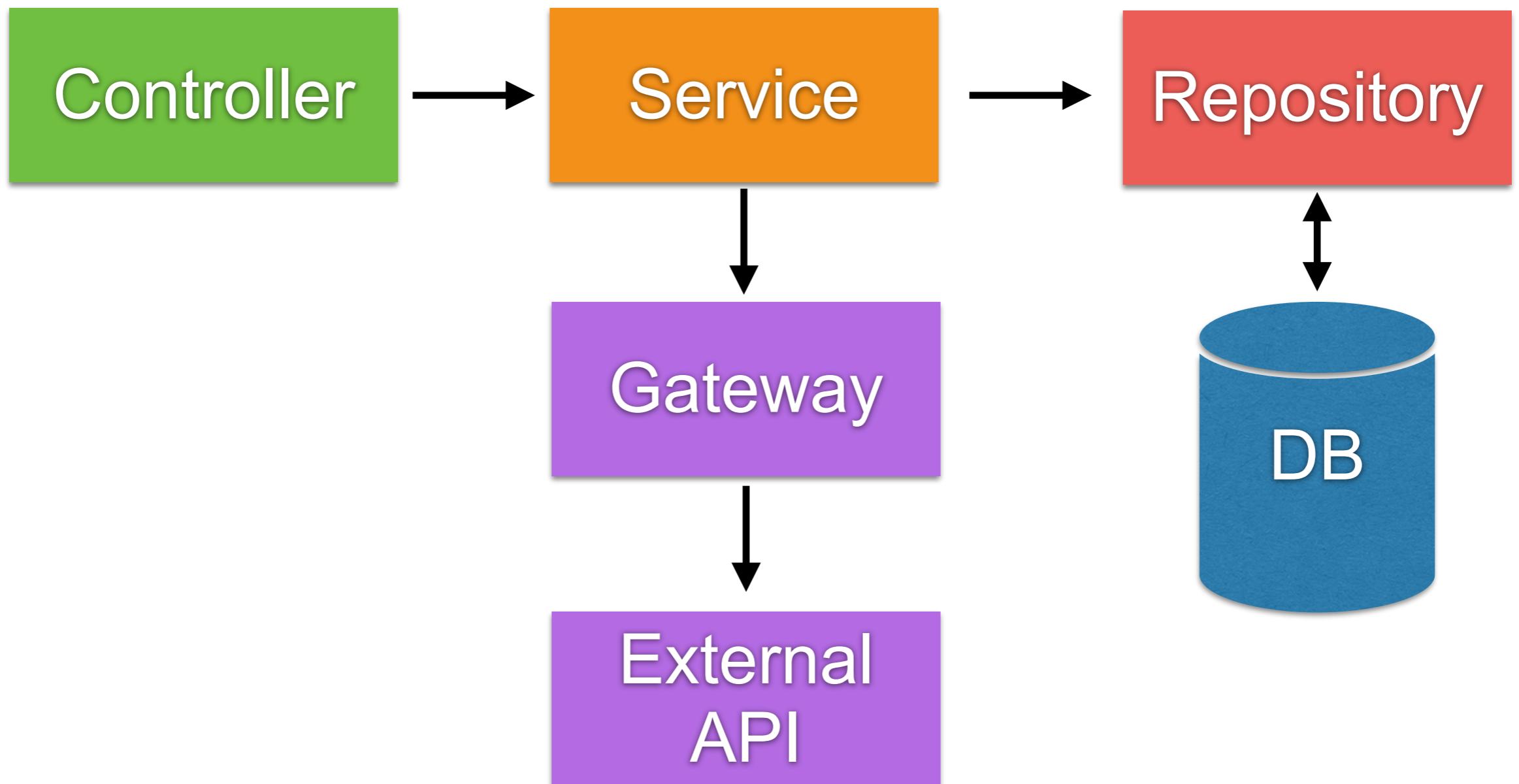
Send request and read response of Services

Read and write data in Database

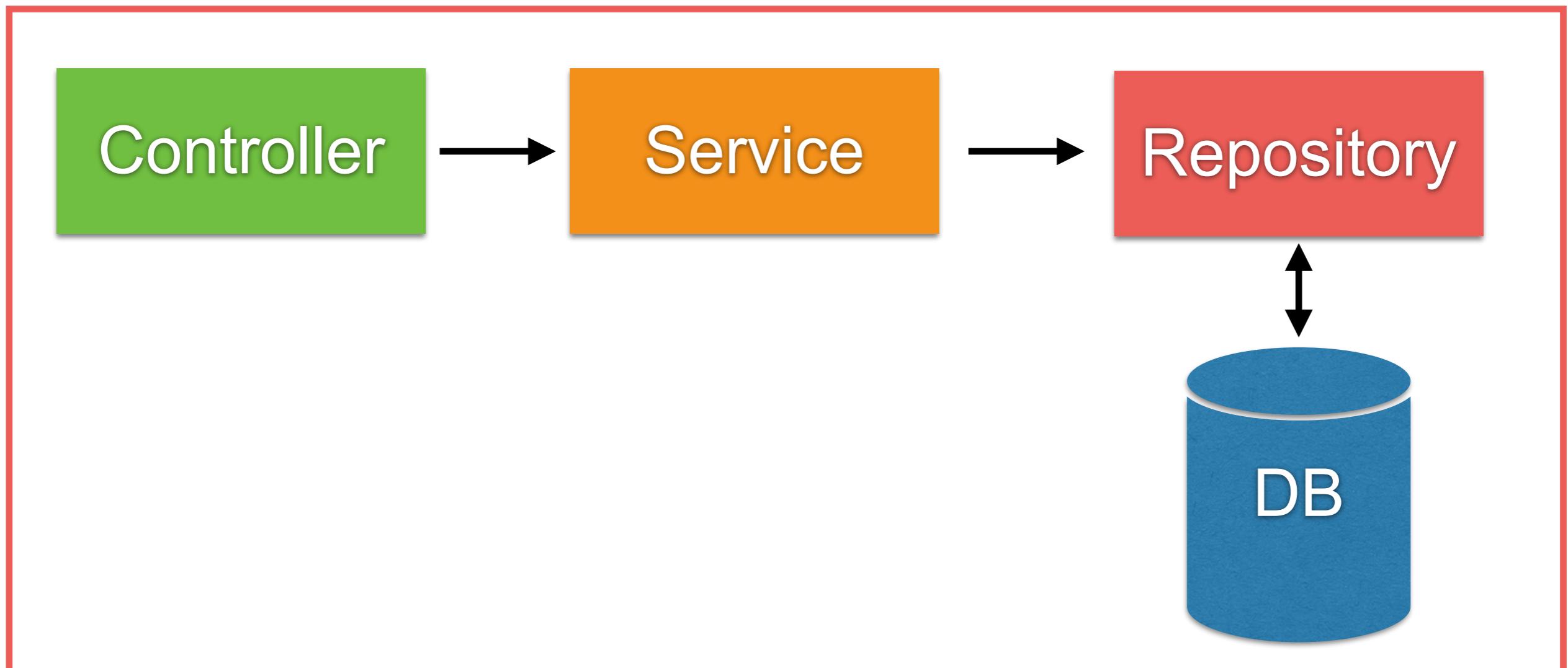
Read and write data in File



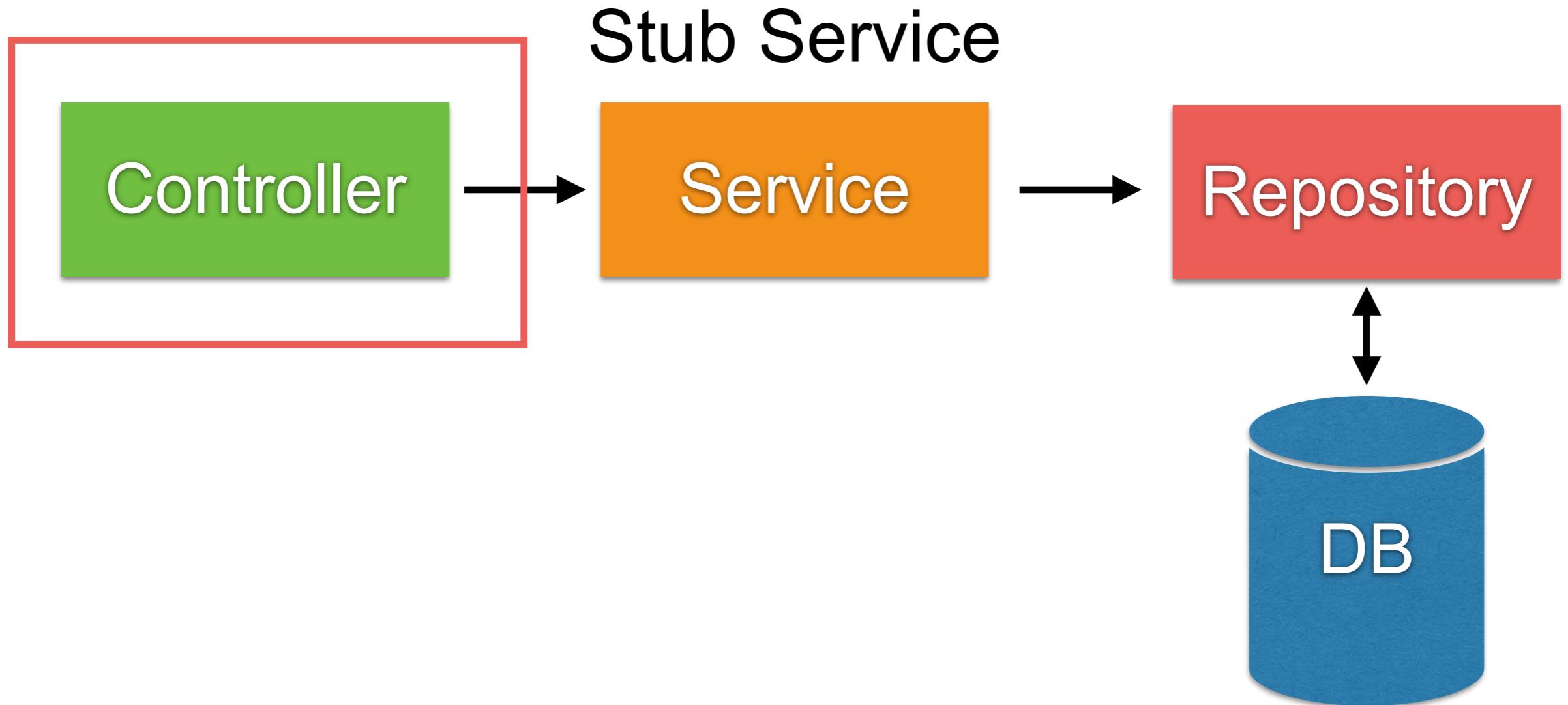
How to test ?



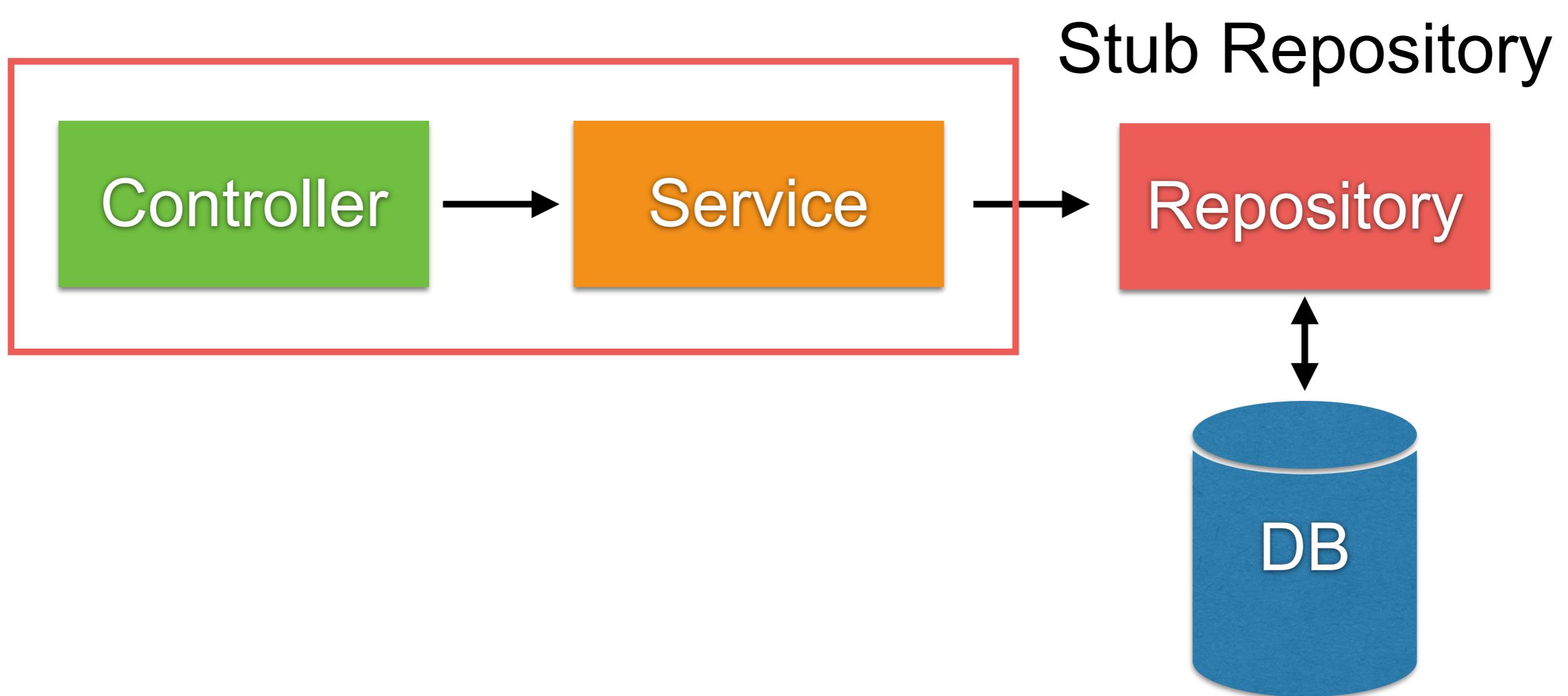
How to test ?



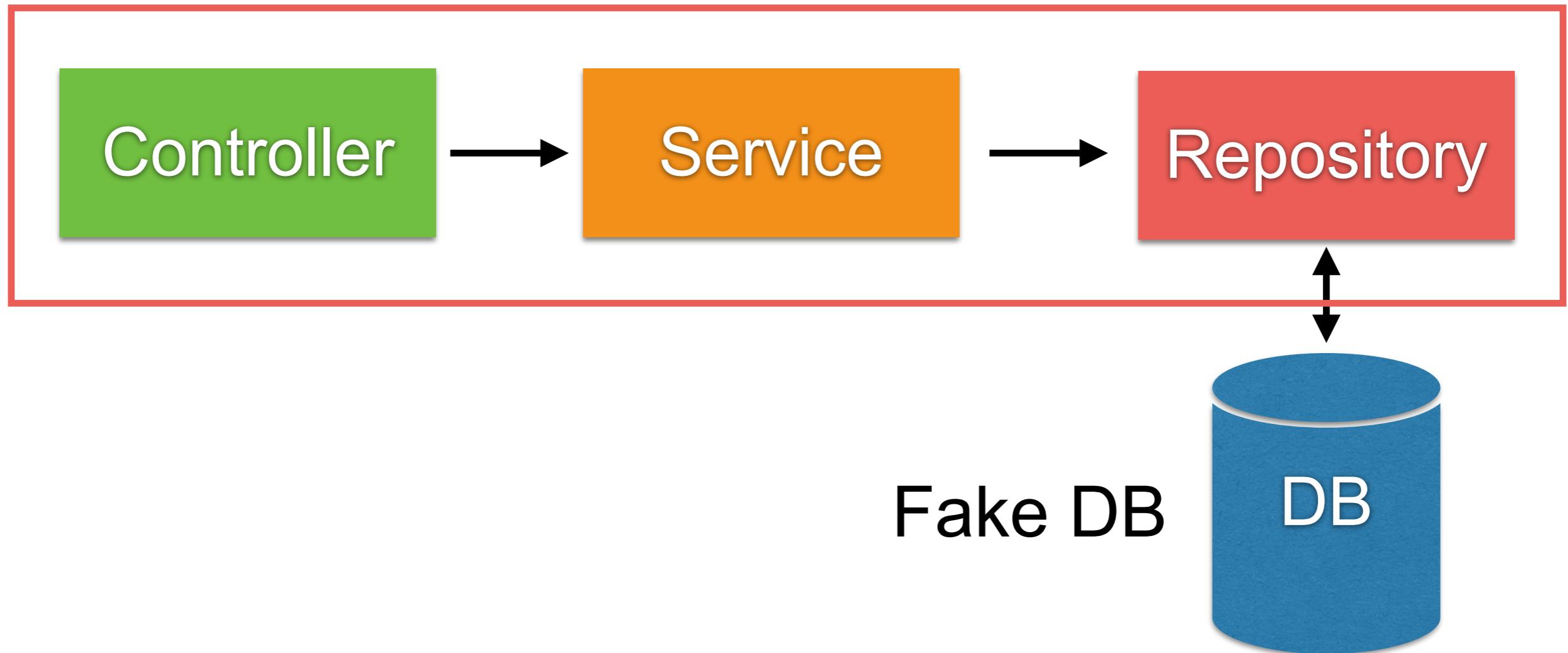
How to test ?



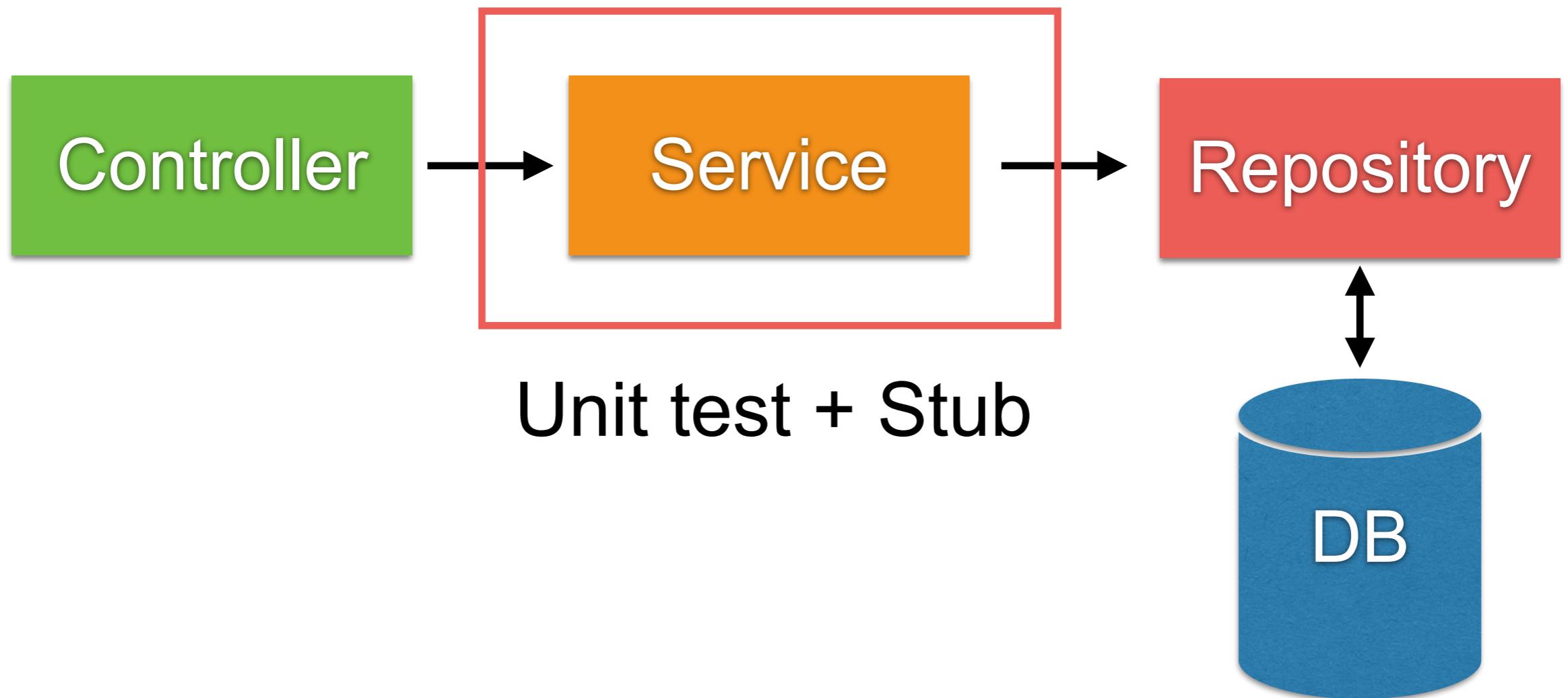
How to test ?



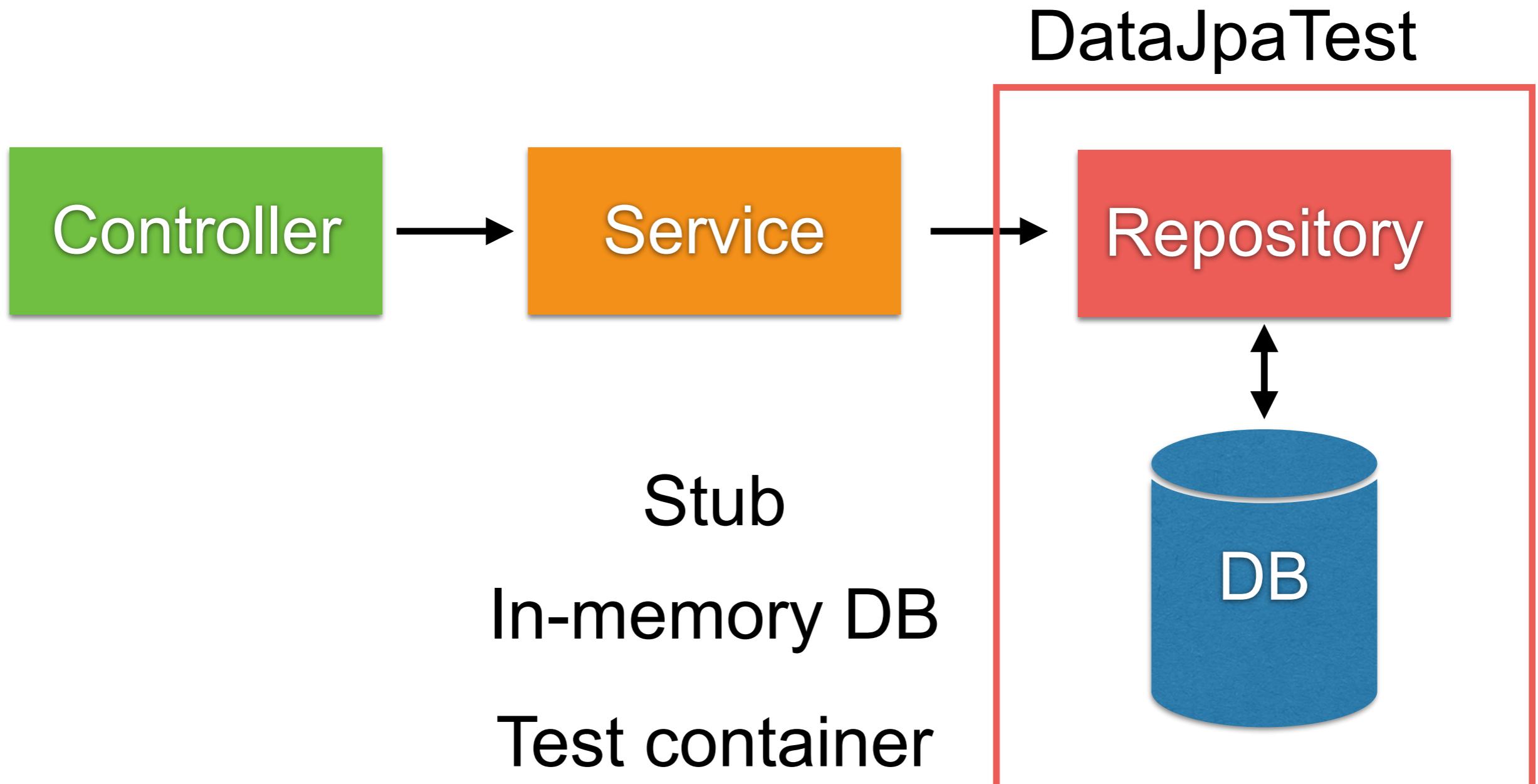
How to test ?



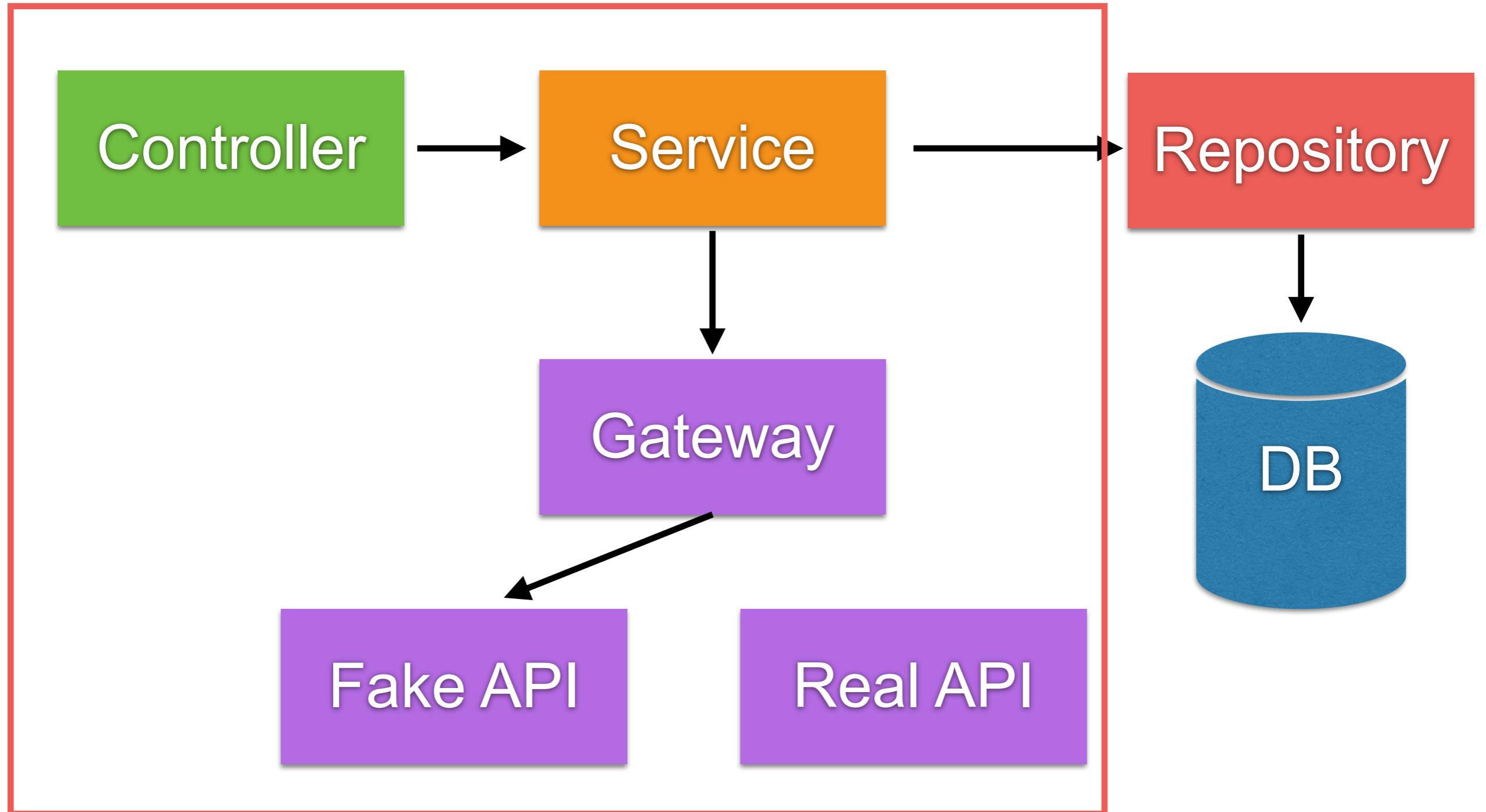
How to test ?



How to test ?



How to test ?



Workshop



More ...



From Assurance to Engineering

“Quality Engineering is the management, development, operation and maintenance of IT systems and enterprise architectures with a high quality standard.” - New Perspectives on Software Quality by Ruth Breu; Annie Kuntzmann-Combelle; Michael Felderer (January–February 2014).

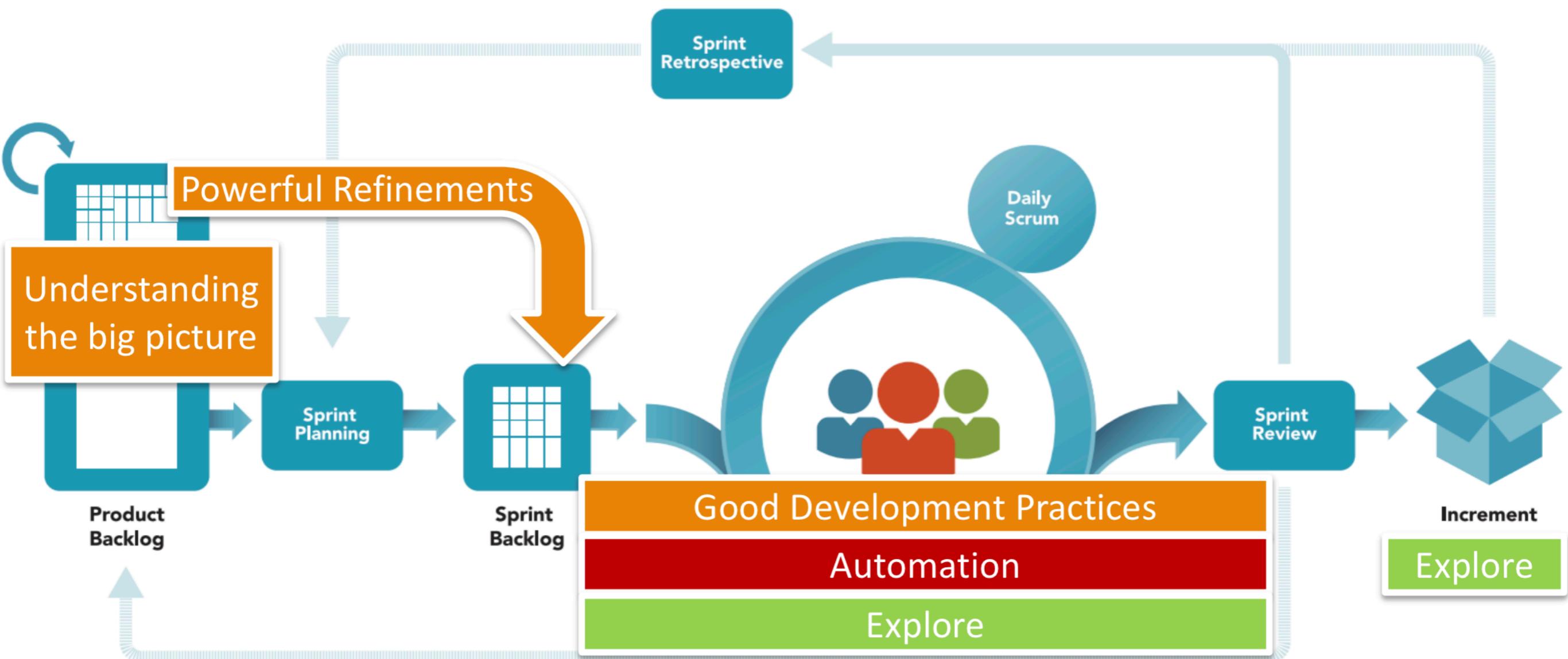




What needs to happen ?

Testers becoming Quality Engineers
Quality from the start
Automation, Automation, Automation
Explore to test





Q/A

