Contract Tests with PACT

Intro

Effective tests suites with short feedback loop:
  - needs to run fast and reliable
  - needs to run as early as possible
  - run in isolation
  - includes combination of testing strategies
  - leads to high test coverage
    - developer confidence
  - don't make assumptions about availability of external services

The problem with E2E integration testing

- Try to ascertain confidence about compatibility with external services
- Testing against doubles (mocks) ?
  - can get out of sync with real supplier service
- Testing against staging systems?
  - full of promise to assert overall product is working
  - awful feedback loop! → slow → unreliable
  - depending on too many things at once

Intro to Contract Testing

- Alternative testing strategy
    - complements the deficiency of unit testing
    - verifies external dependencies work together
    - essential part of a mature microservice testing portfolio
- shines in environment with many services
- avoids version hell
- enabling independent service deployments
- enables teams to work independently
- no need for high-maintenance staging systems
- API contract by example

Intro to Consumer Driven Contract Testing

- contract is written as part of the consumer tests
- only parts that are actually used get tested
- any provider behaviour not used is free of change
- am I building what is wanted?
- providers get to know it's consumers
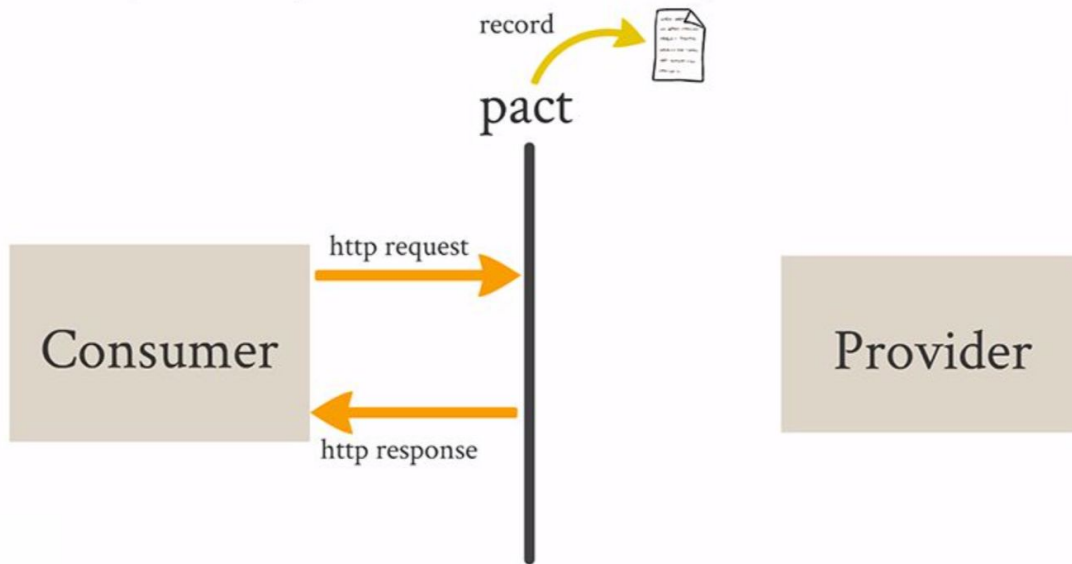
Contract Testing Tools

- Spring Cloud Contract
  - integrated in Spring framework
  - creates stubs for WireMock (client testing)
  - supports HTTP and messaging tests (not Apache Kafka)
  - acceptance tests for provider verification
  - contracts stored in the producer repository
- PACT
  - family of testing frameworks
  - supports testing of HTTP and messaging
  - can be used in a lot of environments

PACT ecosystem

- Bindings for a lot of languages
- support for a lot of test frameworks
- PACT broker to manage contracts and verificatio
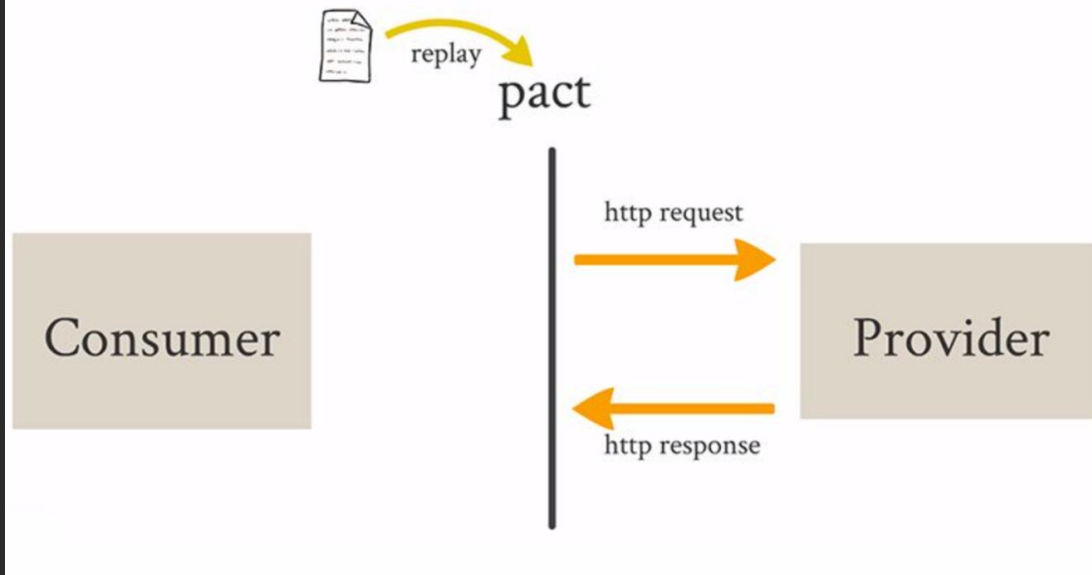- provides "can-i-deploy"-tool for consumers

PACT Consumer testing

PACT Provider verification

PACT expectations and provider verification

- consumer and provider can act independently
- consumer tests the contract
- consumer publishes contract
- provider verifies contracts
- results are published
- history available at PACT broker

LIVE DEMO