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Automatic testing of a heavily integrated system

A case-study

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Jörgen Andersson

- Systems Architect
- Enthusiastic Developer
- Tools and Processes Team
- 19 years of enterprise development
- Complex administrative systems
- Big fan of Spring Boot, automatic testing and continuous delivery

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@se_thinking

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~50 dev/test in 6 teams

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~500.000 lines of code

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~200 automated processes

2 to 150 conditions in each

~4.100 conditions in total

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a few ways in

~25 outgoing integrations

~100 outgoing SOAP/REST calls

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~5.400 automated system tests

~7 h execution time

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~Continuous Delivery ->
"Frequent releases"

smoke test on every commit
full test run every night

delivery to production every week

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But why?

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"Always right, at the right time"

"Frequent releases"
-> Steady flow of improvements

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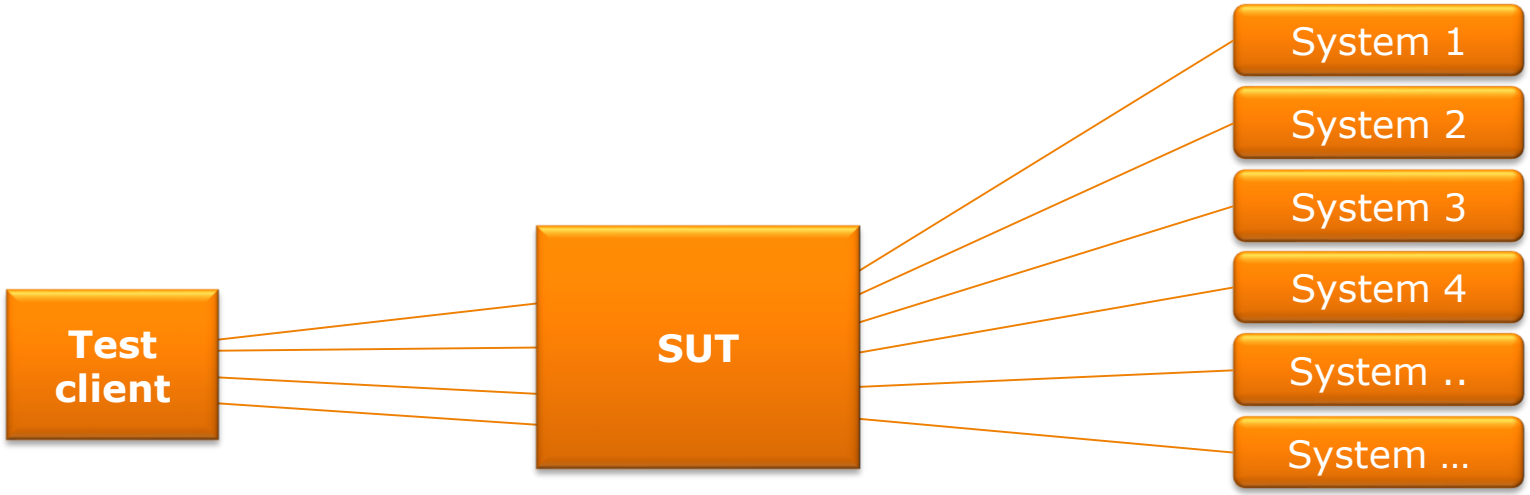

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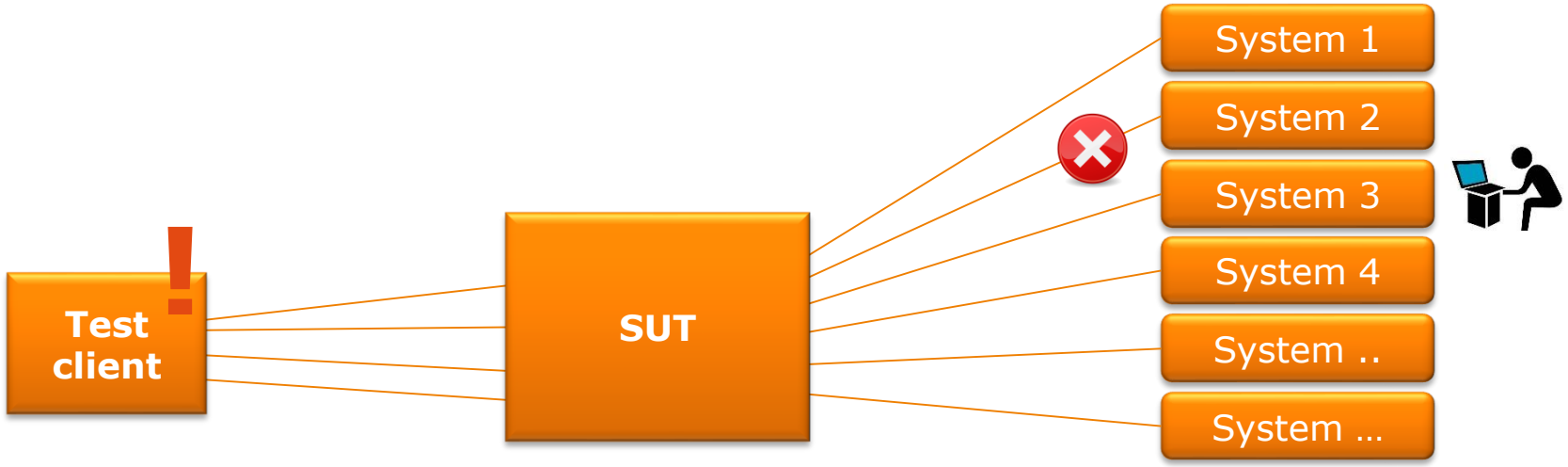
The Dependency Problem



- How to find proper test data?

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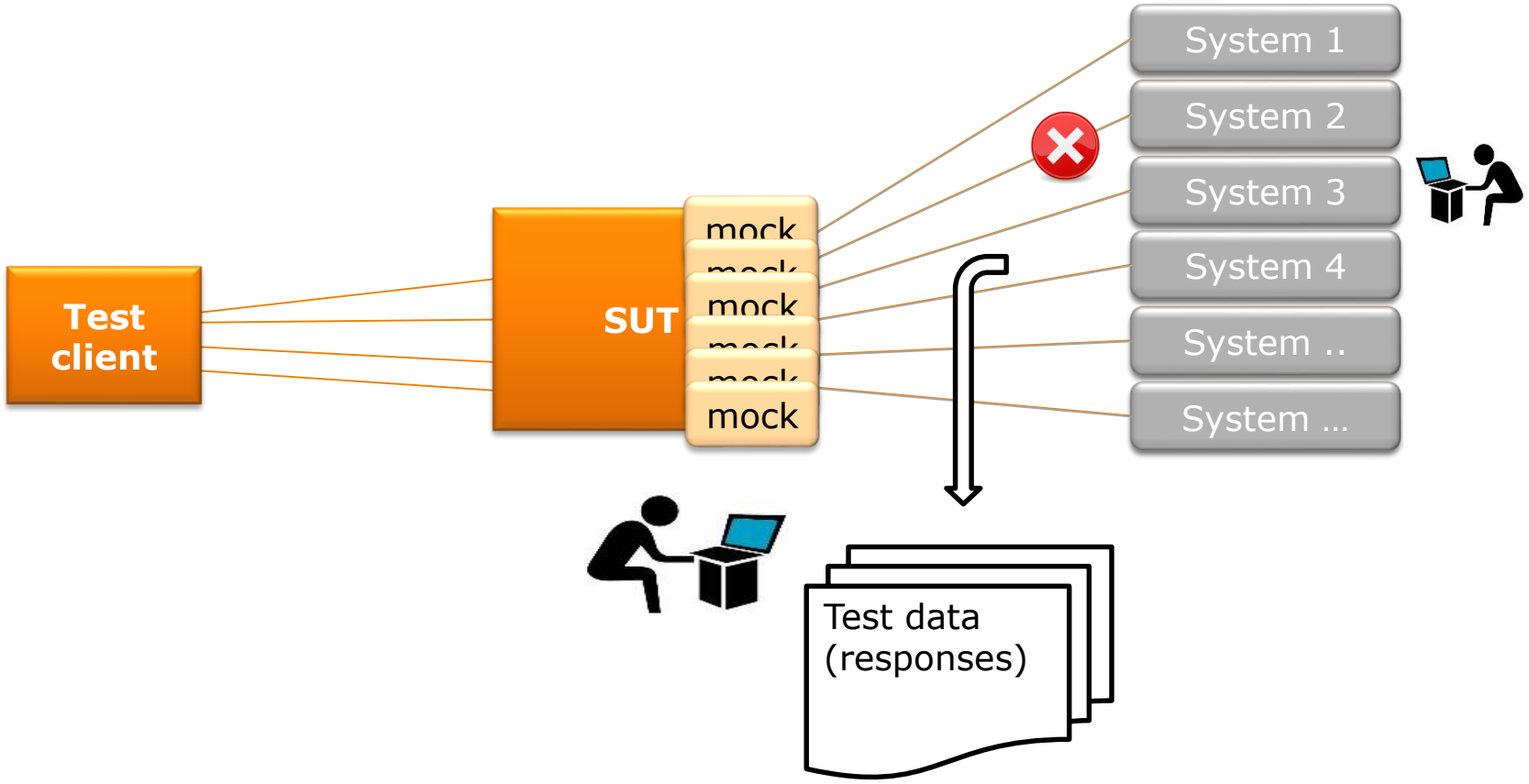
The Bubble



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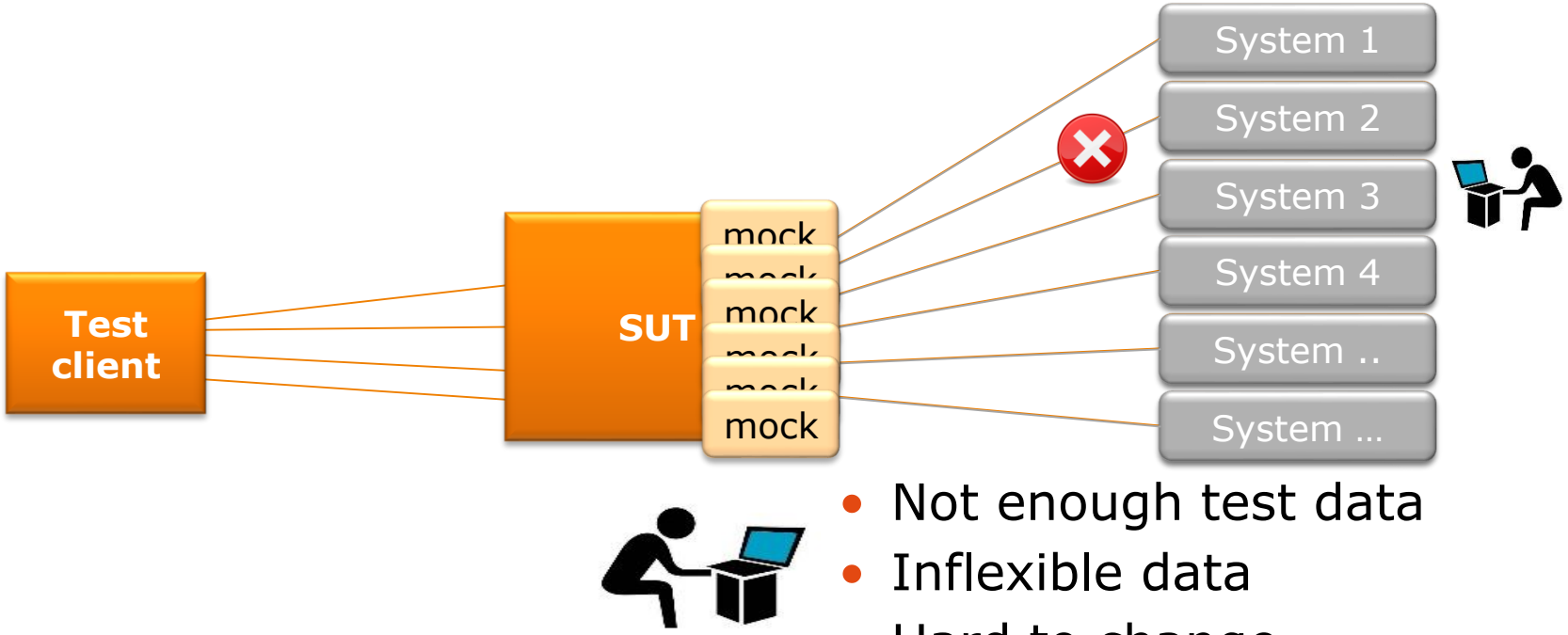
The Growing Problem



- Not enough test data
- Inflexible data
- Hard to change
- Mock-files growing very large
- Mock replacing parts of SUT

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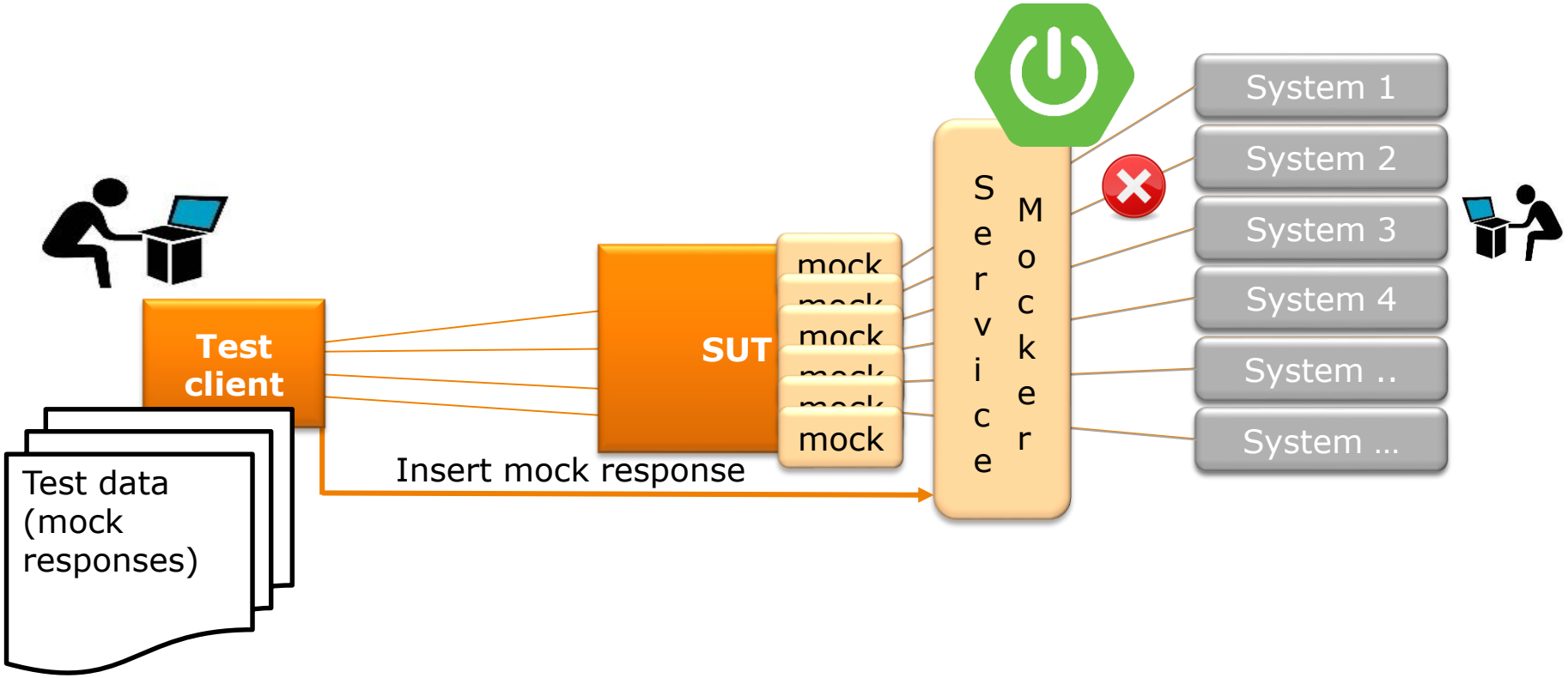
TestLocal.mock



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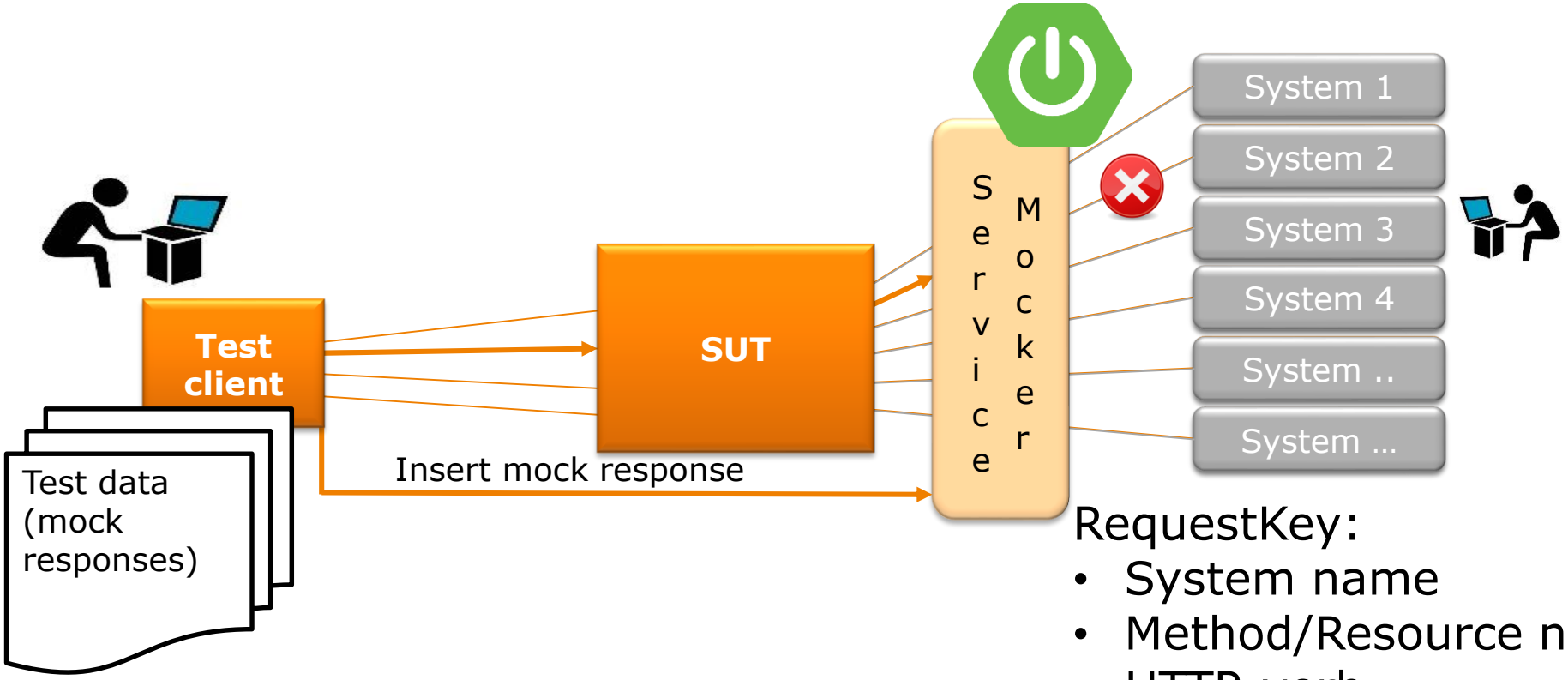
TestLocal.mock



RequestKey:

- System name
- Method/Resource name
- HTTP-verb
- Request parameters

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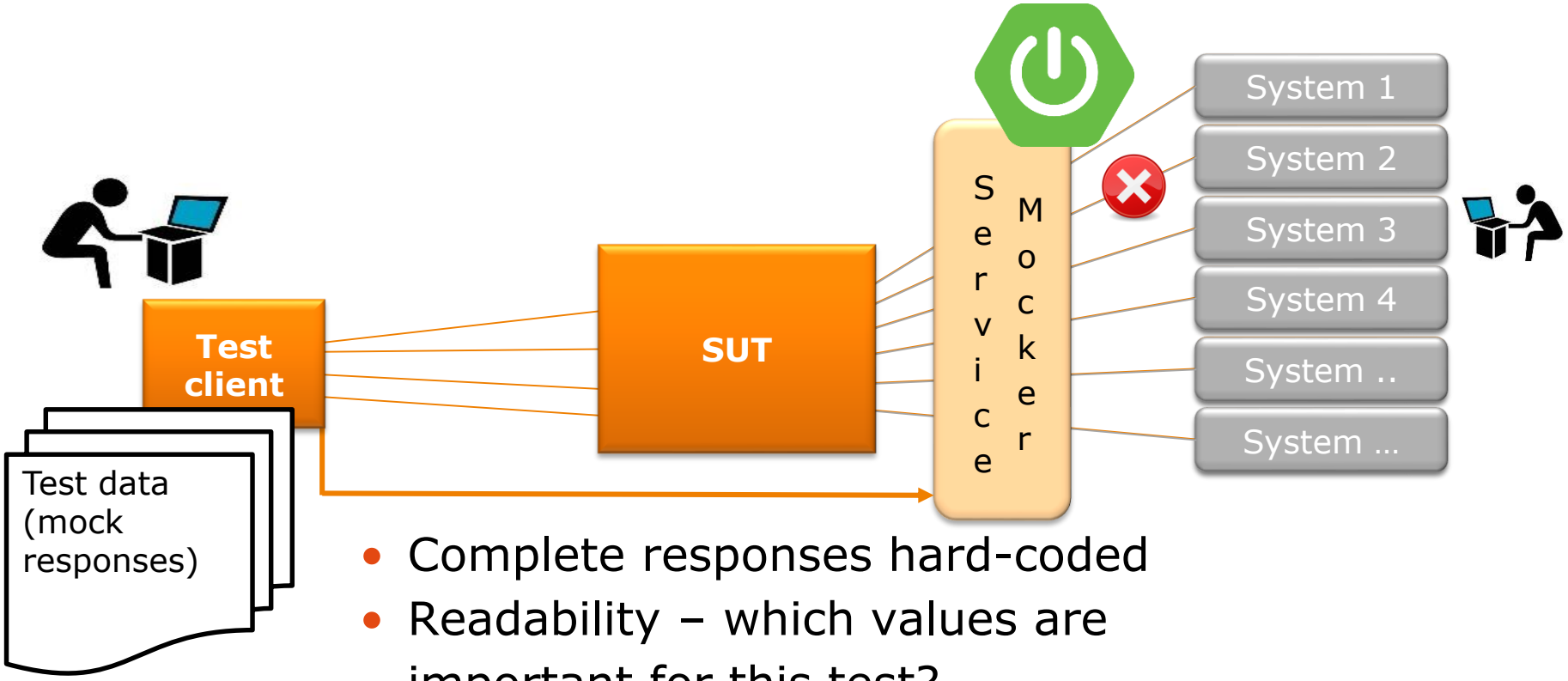
The Hard-coded Problem



- Complete responses hard-coded
- Readability – which values are important for this test?
- Hard work as APIs changes
- Still hard to find new test data

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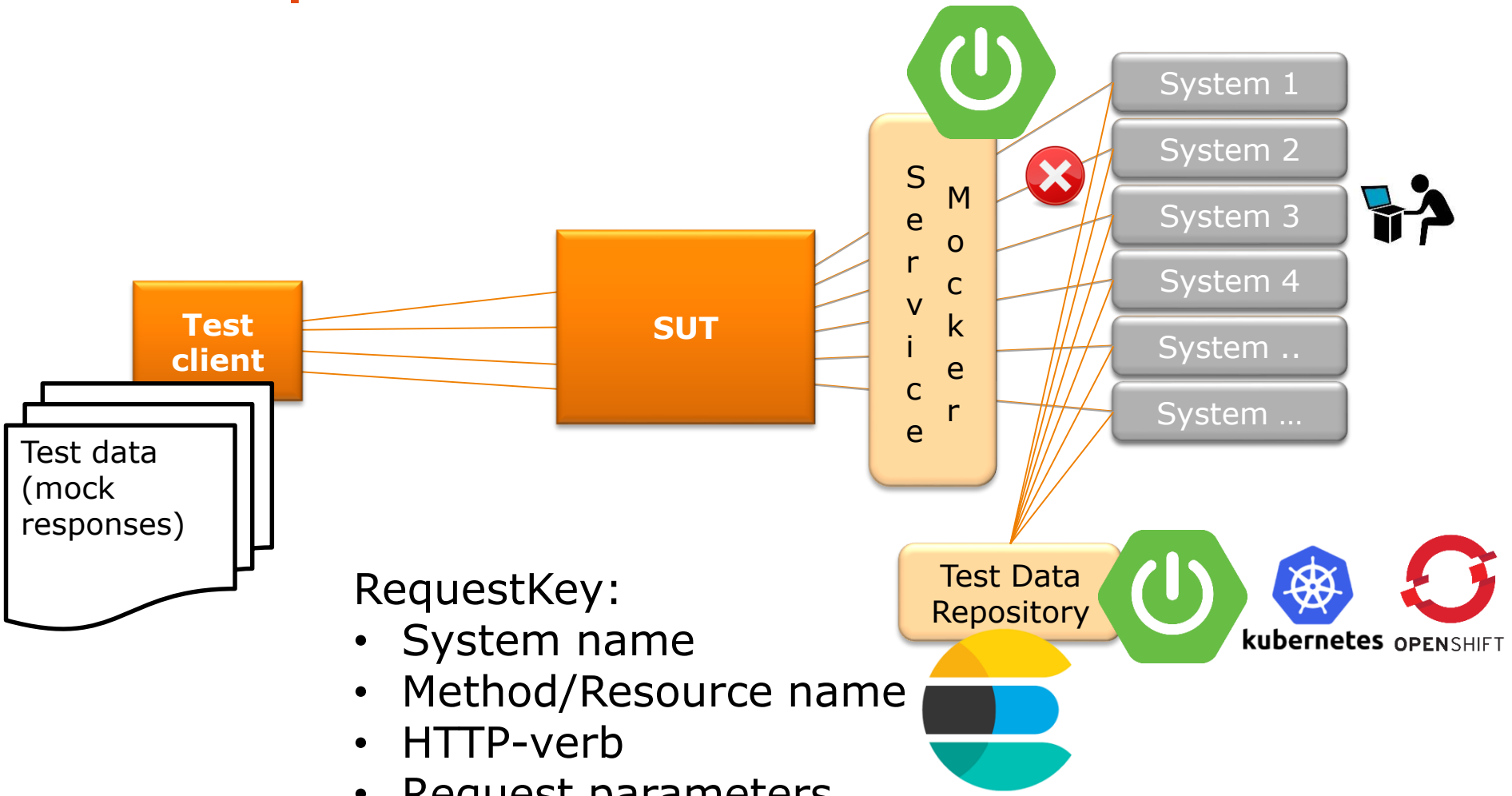
The Decoupled Solution



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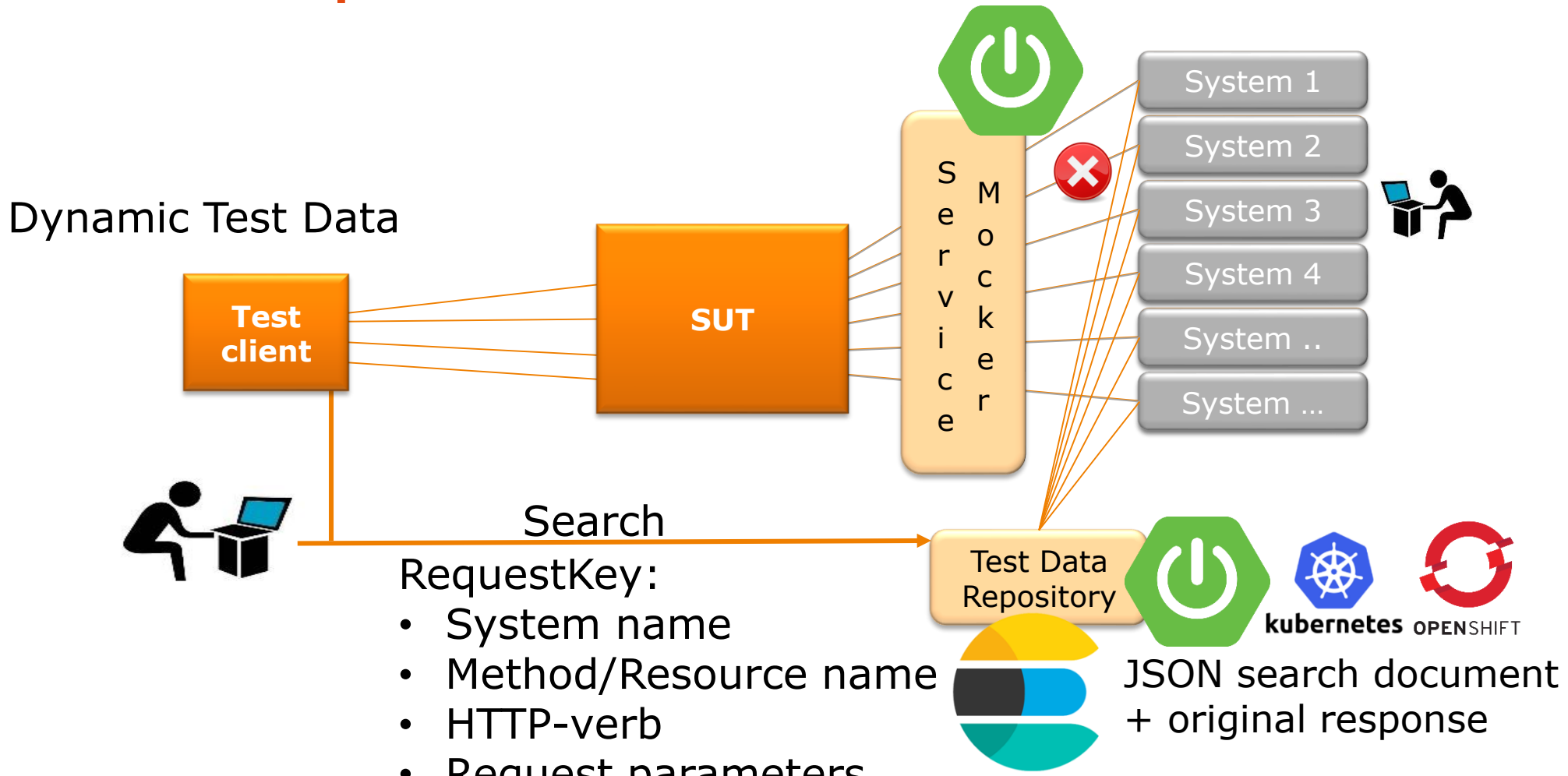
The Decoupled Solution



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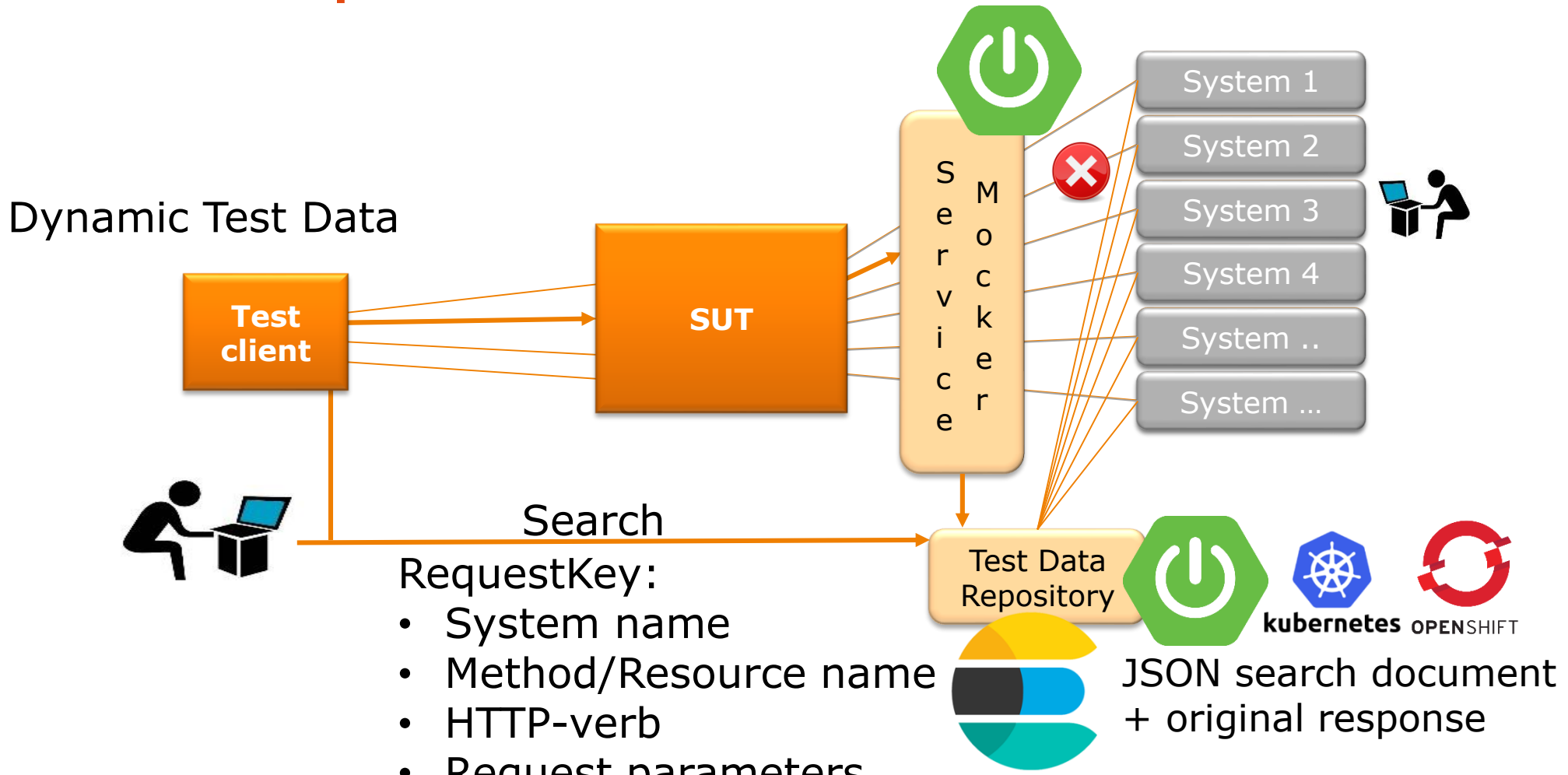
The Decoupled Solution



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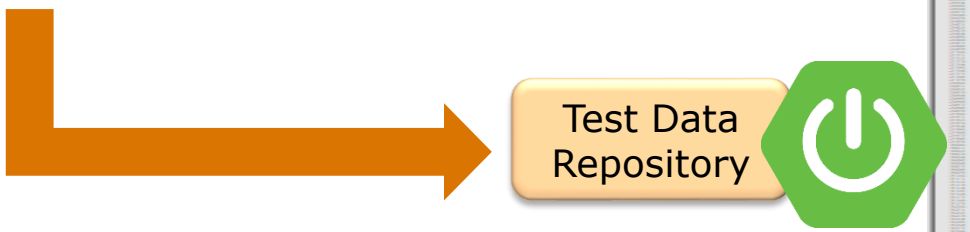
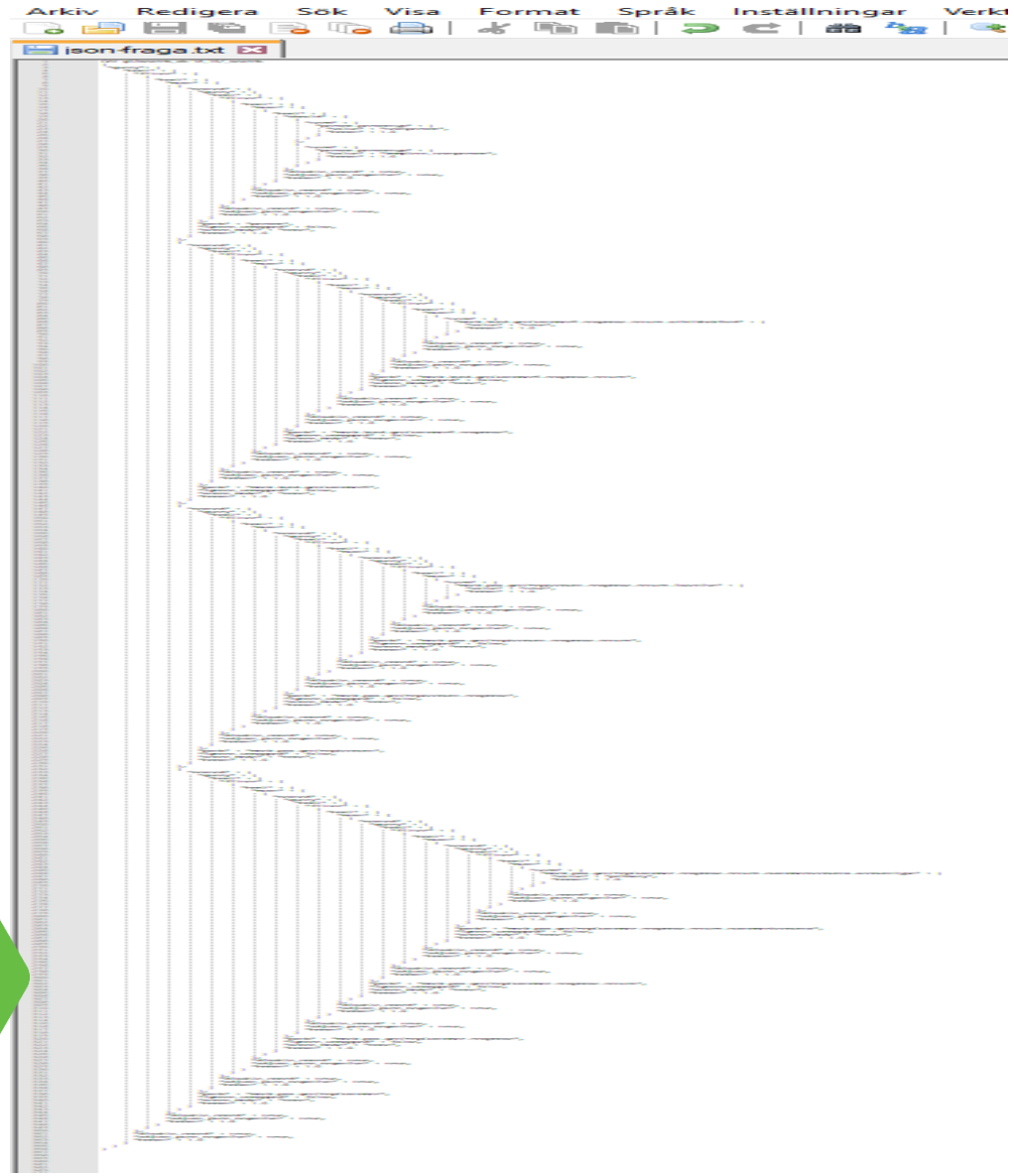
Söktermer

- Folkbokförd == Ja
- Kontotyp == PRIMARY
- Aktiv == Ja





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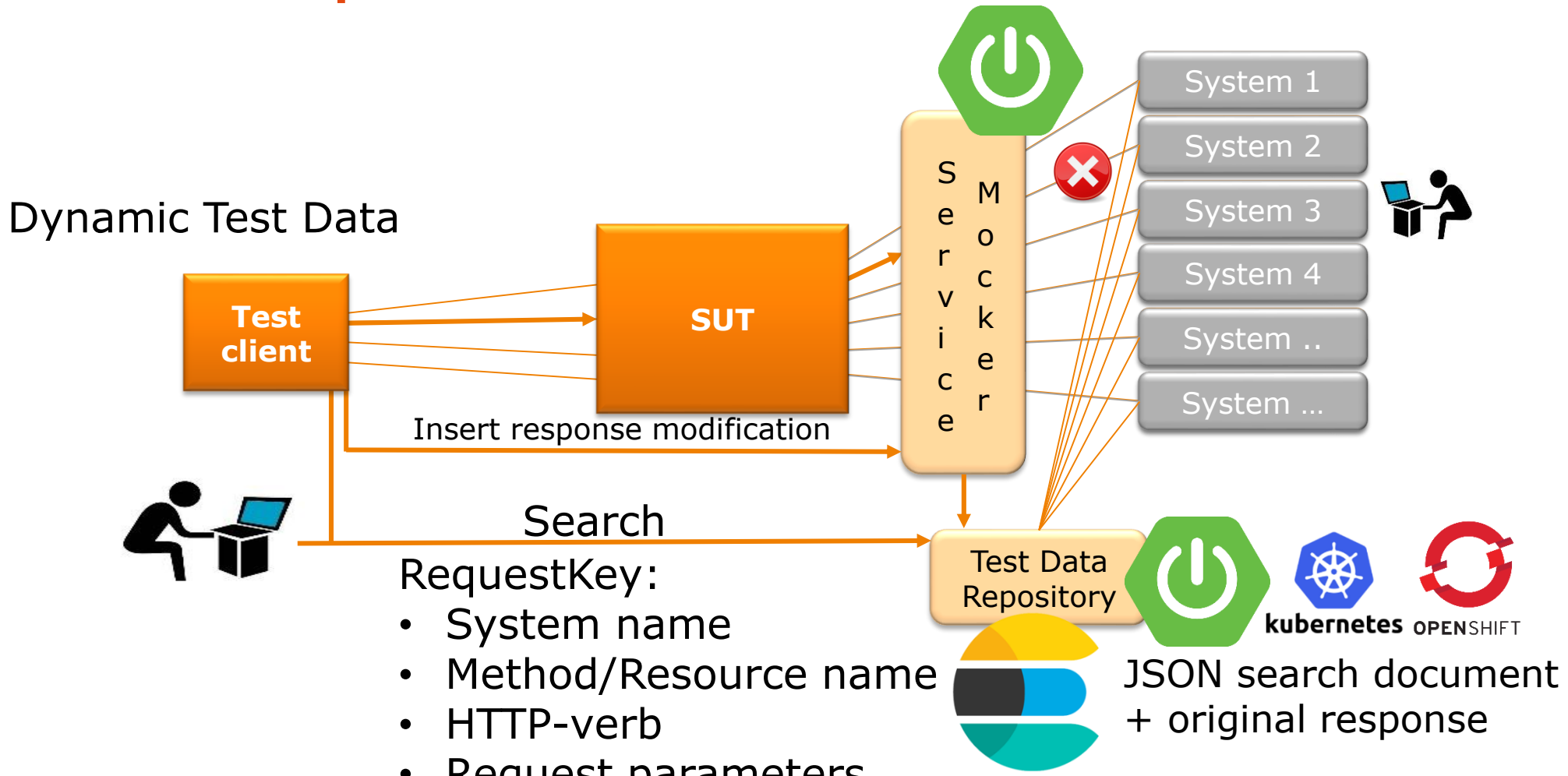
The Decoupled Solution



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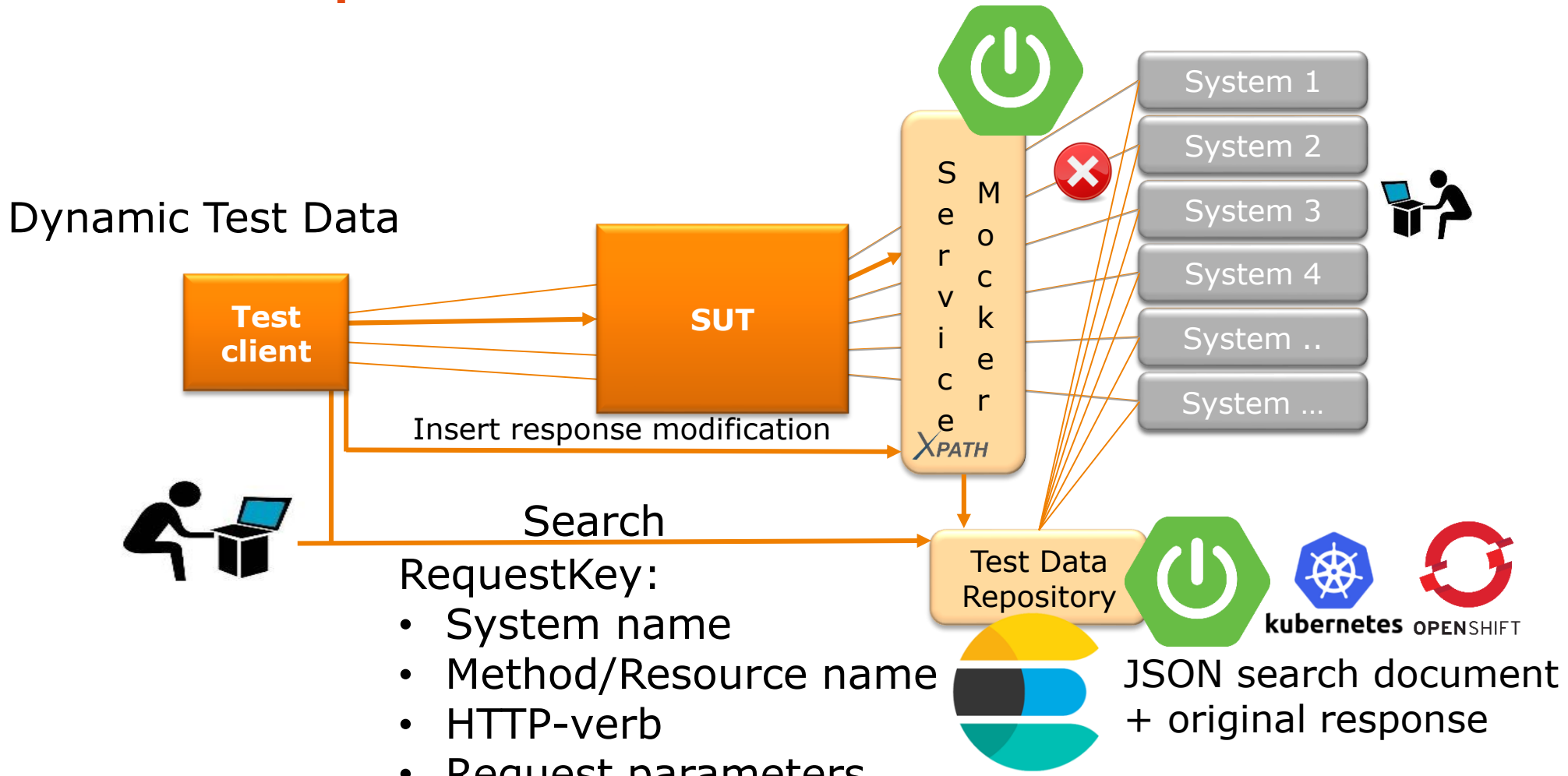
The Decoupled Solution



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Service Virtualisation

en.wikipedia.org/wiki/Service_virtualization

- Record request/response
- Store to be able to serve up mocks later
- Tests runs independent from back-end systems
- Same data is used in each test run

+ Test data search!
+ Response modification!

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Sum-up

- Reliable automated testing
  -> The core of Continuous Delivery

- Decouple tests from back-end integrations
- Avoid hard-coded mocks
- Make test data searchable!
- Let tests modify test data if necessary!

- Build yourself based on open-source components!

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