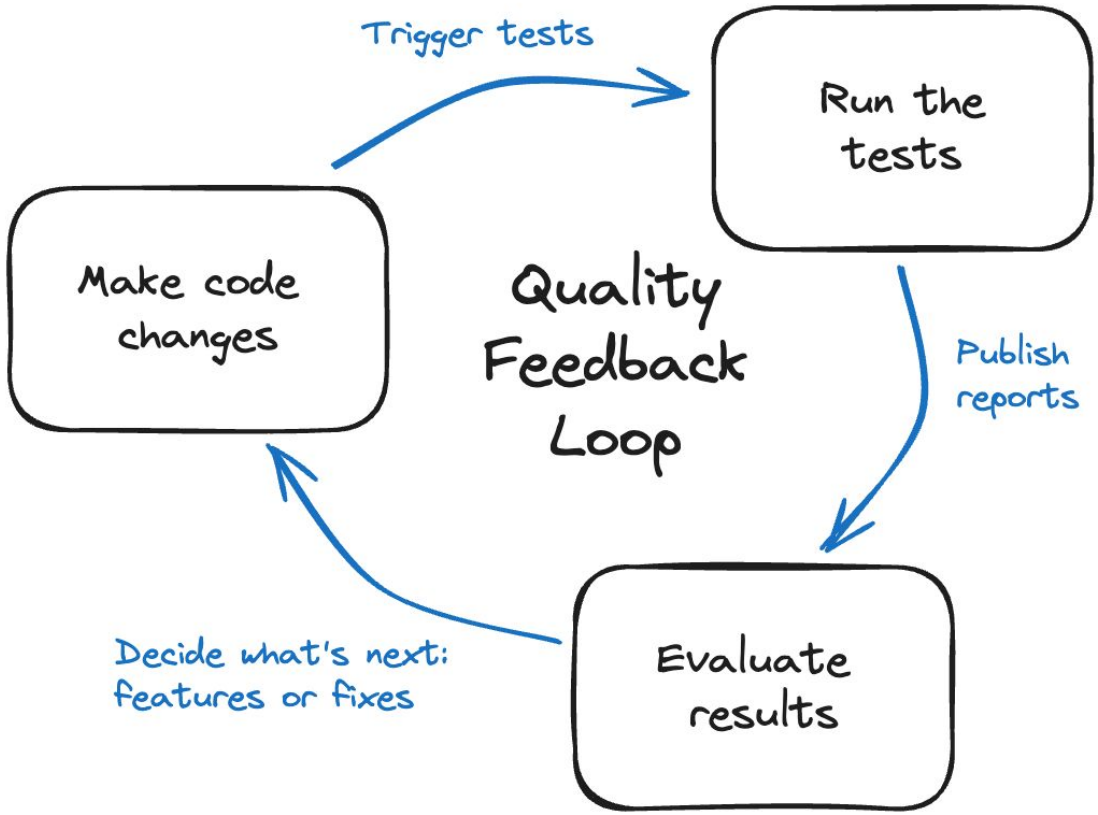
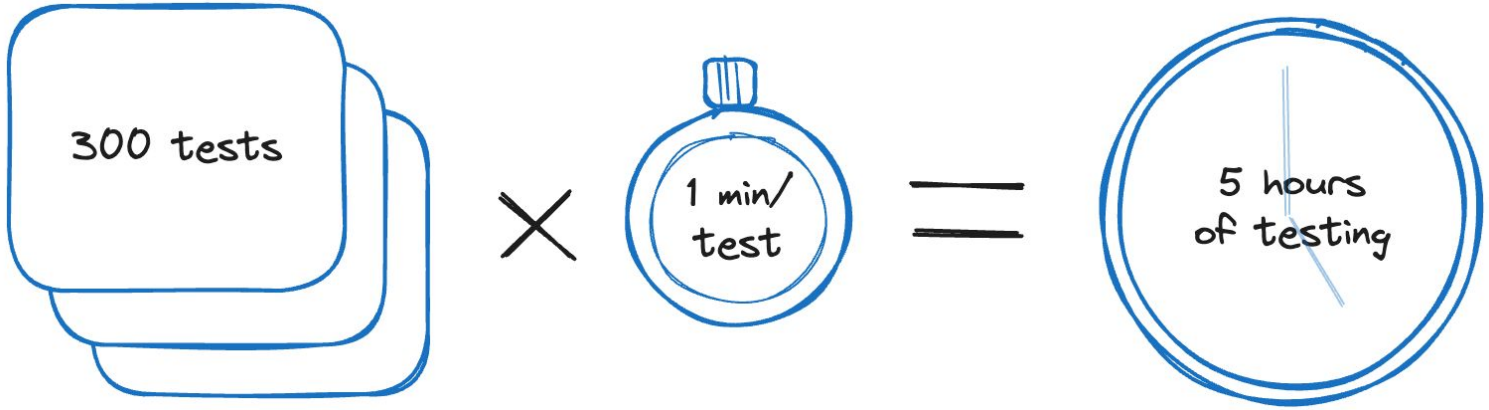
Scaling Automated Tests to Infinity and Beyond

Pandy Knight
@AutomationPanda


Trigger tests
Run the tests
Make code changes
Quality Feedback Loop
Publish reports
Evaluate results
Decide what's next: features or fixes

Test Execution Time



Pandy’s

Pandy's **5**

Pandy's **5 steps**

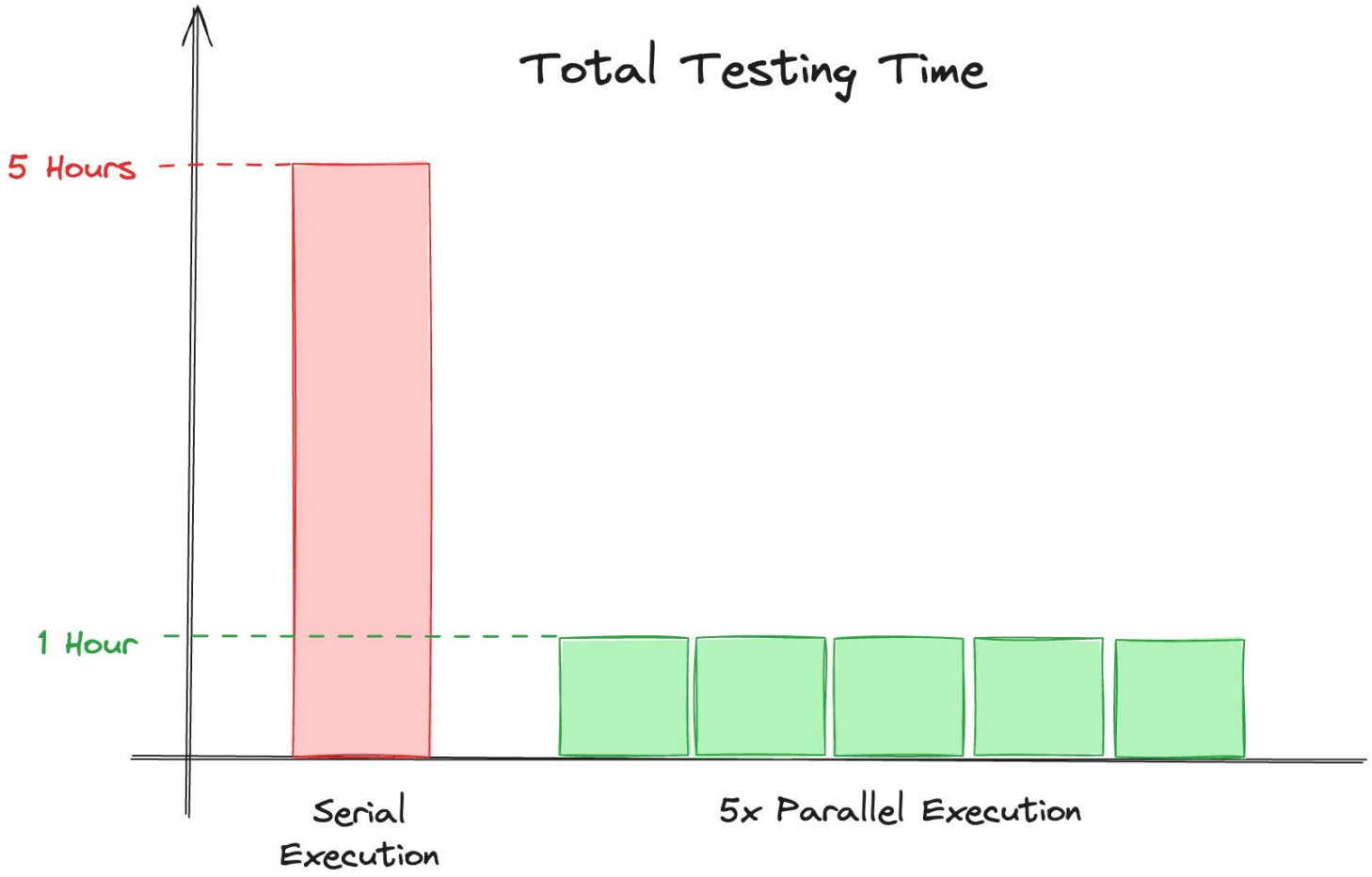
Pandy's **5 steps** for

Pandy's **5 steps** for scaling

Pandy's **5 steps** for scaling automated

Pandy's **5 steps** for scaling automated tests.

#1. Run tests in parallel


Total Testing Time
5 Hours
1 Hour
Serial Execution
5x Parallel Execution

Test Case Independence

Independence means that one test does not affect another.

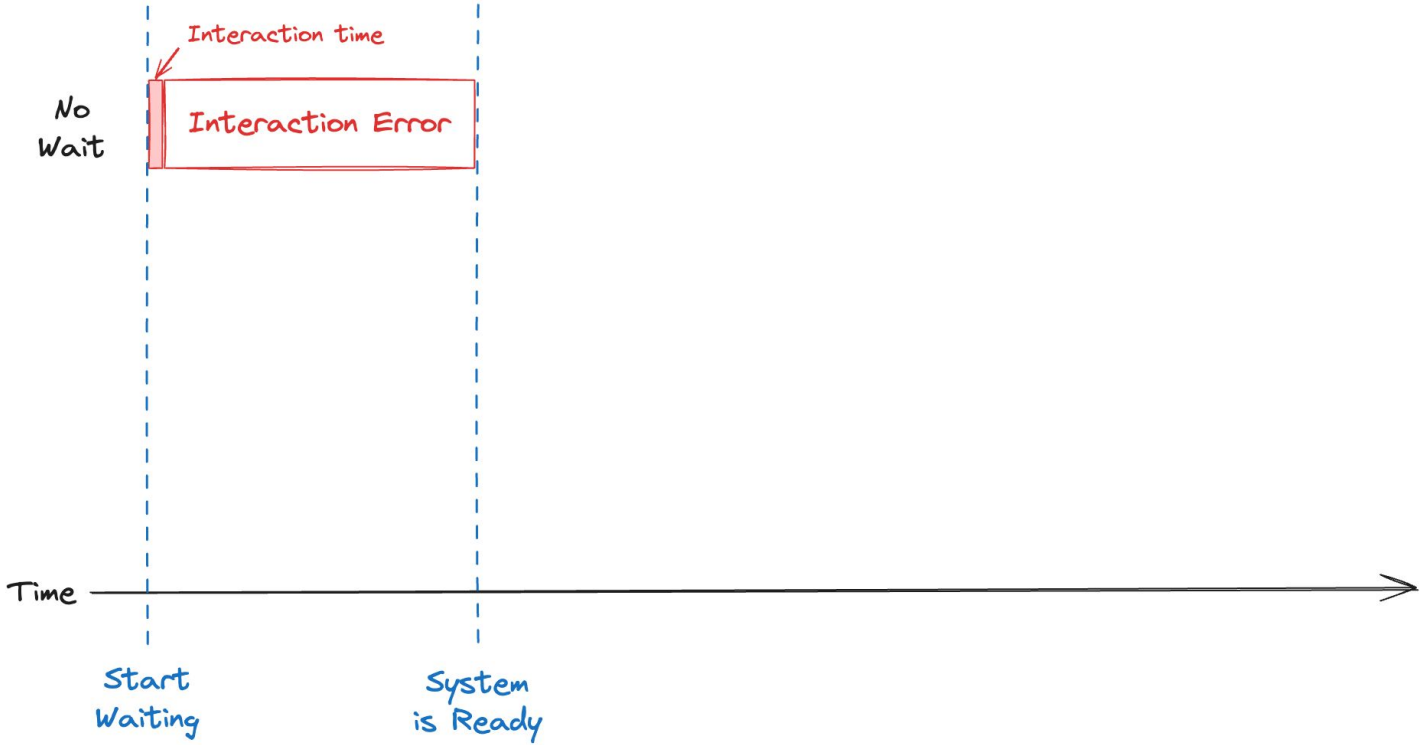
1. ***Individuality***: a test can run by itself without needing other tests
2. ***Isolated data***: tests do not collide on any shared test data

Can your tests run in any order?

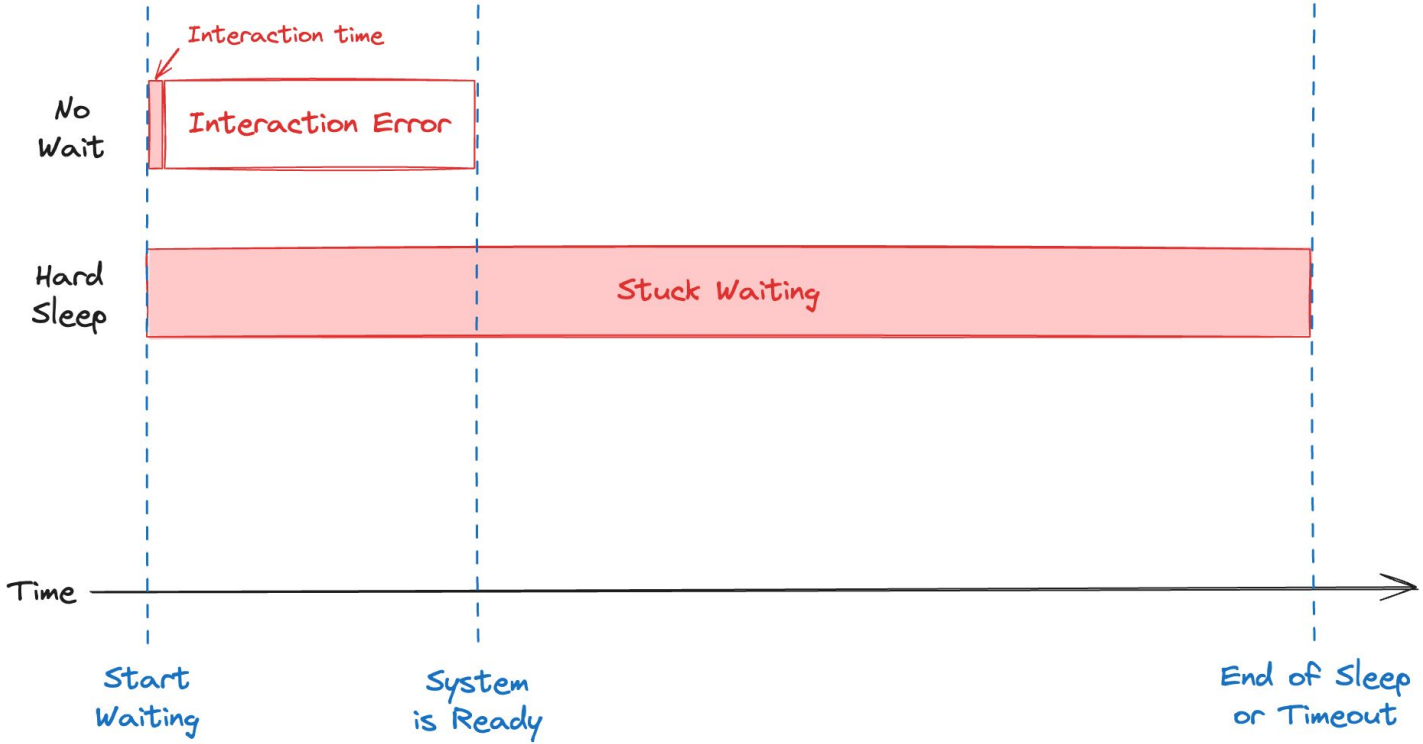
#2. Implement proper waiting

Waiting Strategies

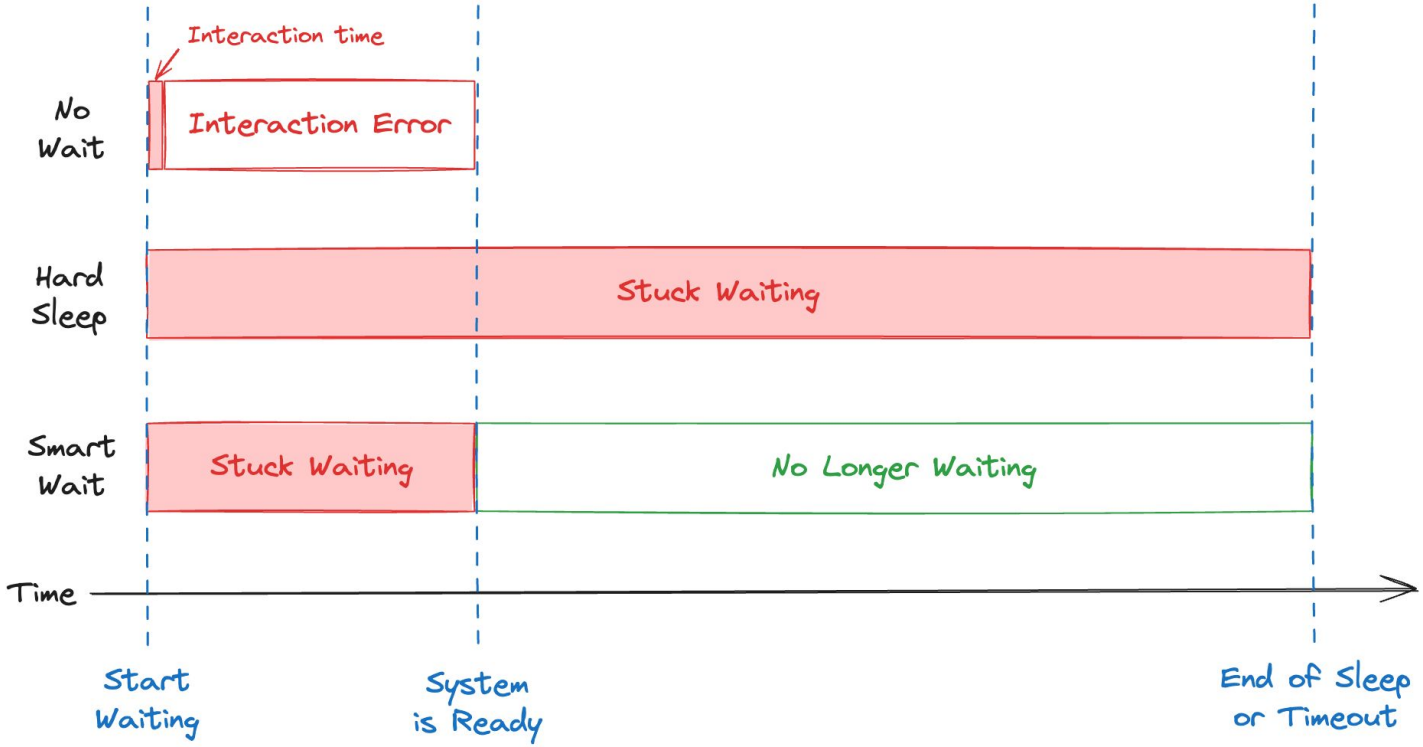
Waiting Strategies



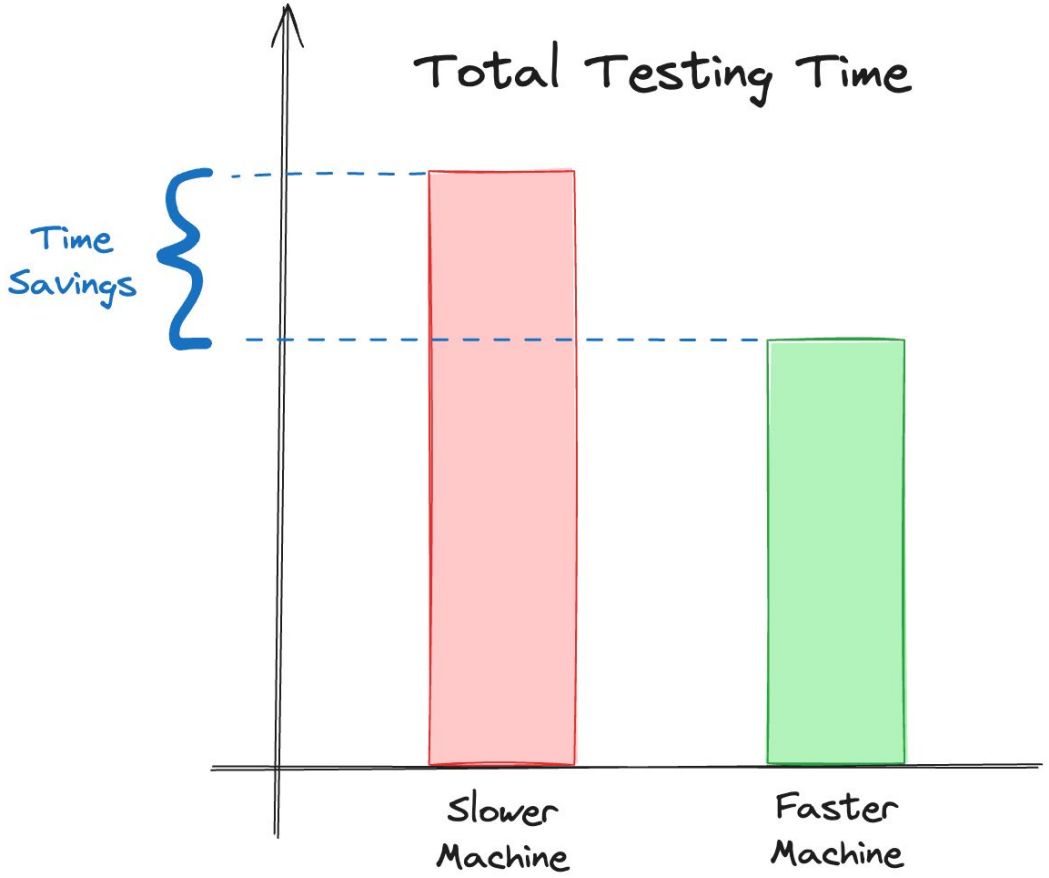
Waiting Strategies



Waiting Strategies



#3. Use performant test infrastructure


Total Testing Time
Time Savings
Slower Machine
Faster Machine

Optimizing test infrastructure

1. Use up-to-date software versions

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2. Use strong computing resources

Optimizing test infrastructure

1. Use up-to-date software versions
2. Use strong computing resources
3. Scale out as well as scale up

Optimizing web tests

Typical browser execution speed:

1. Google Chrome
2. Microsoft Edge
3. Apple Safari
4. Mozilla Firefox
5. Microsoft Internet Explorer

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For Selenium tests: 3 tests per 4 processors.

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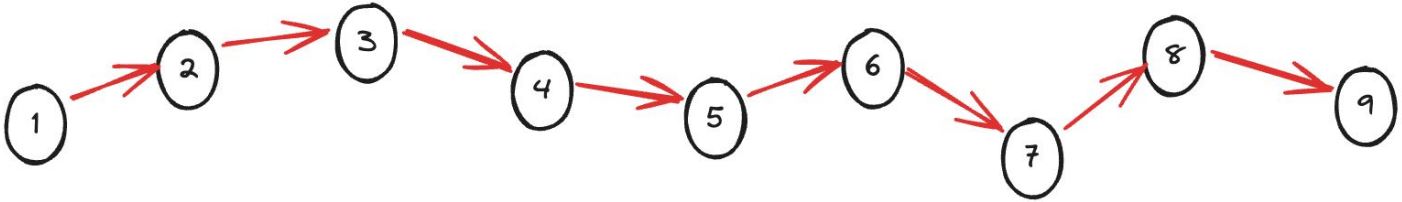
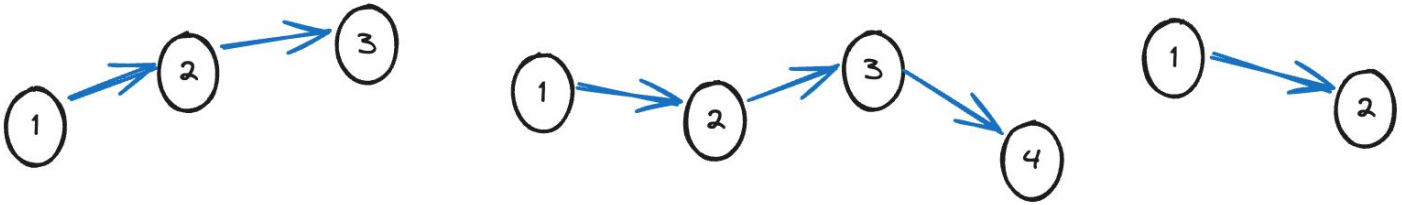
For Selenium tests: 3 tests per 4 processors.

Do not use Internet Explorer anymore.

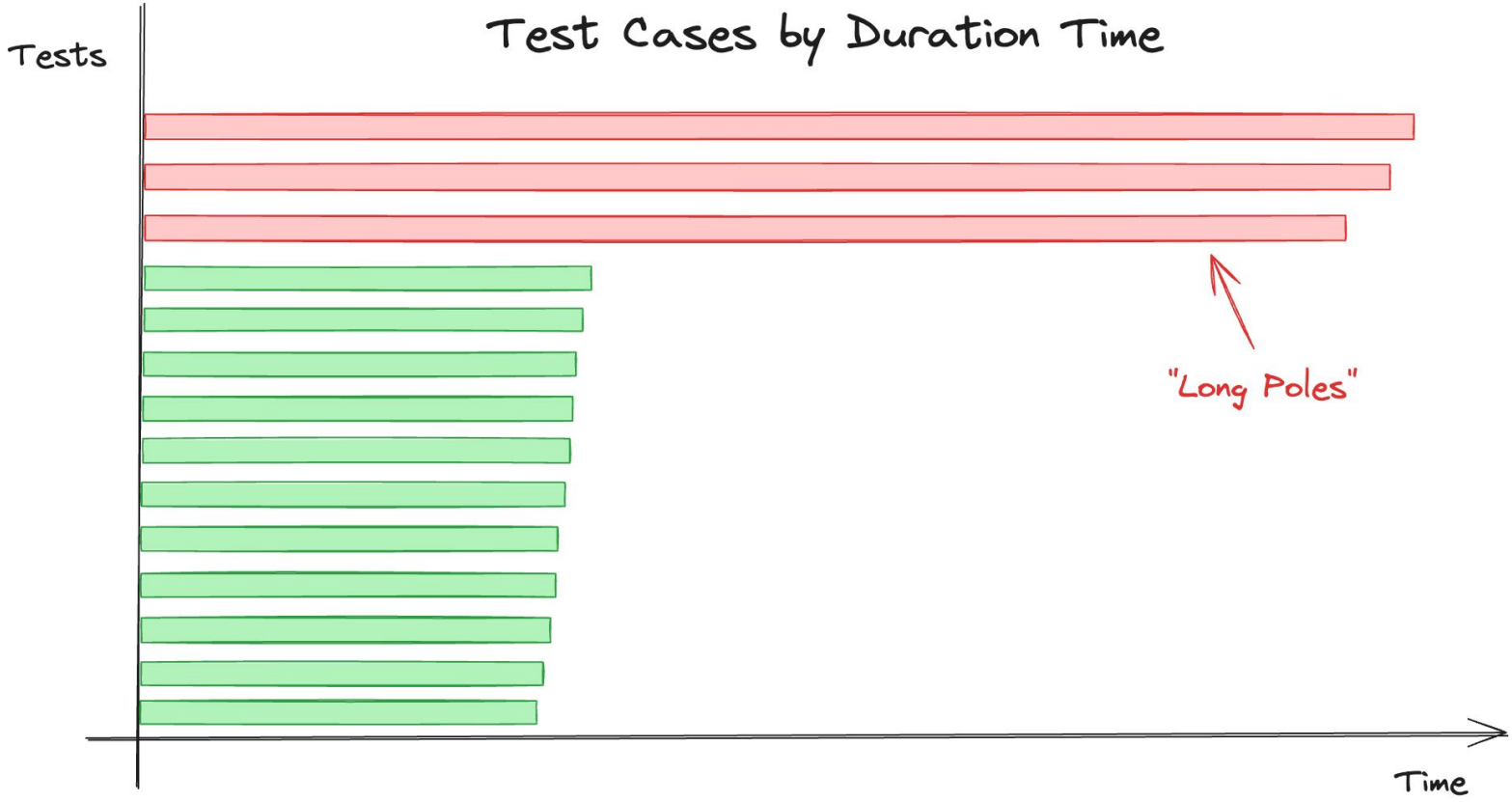
#4. Write balanced atomic tests



A Grand Tour

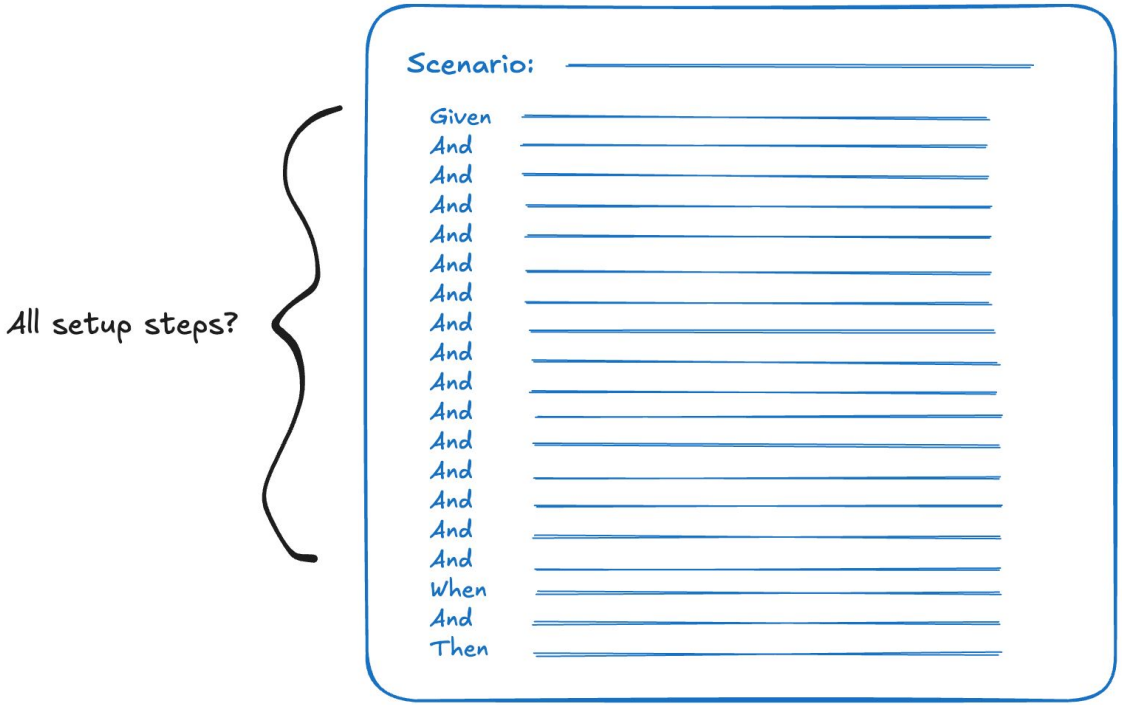


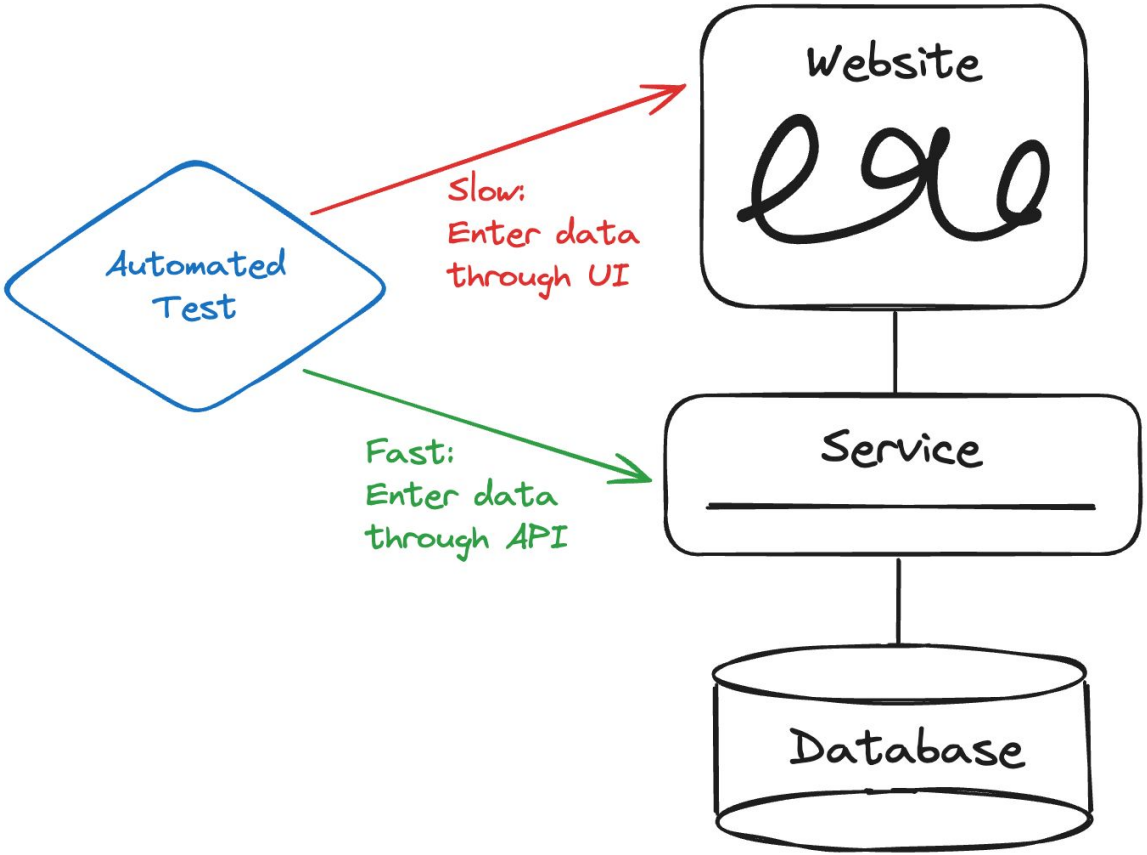
Smaller Atomic Tests


Test Cases by Duration Time
Tests
"Long Poles"
Time

#5. Arrange tests efficiently

Inefficient Setup

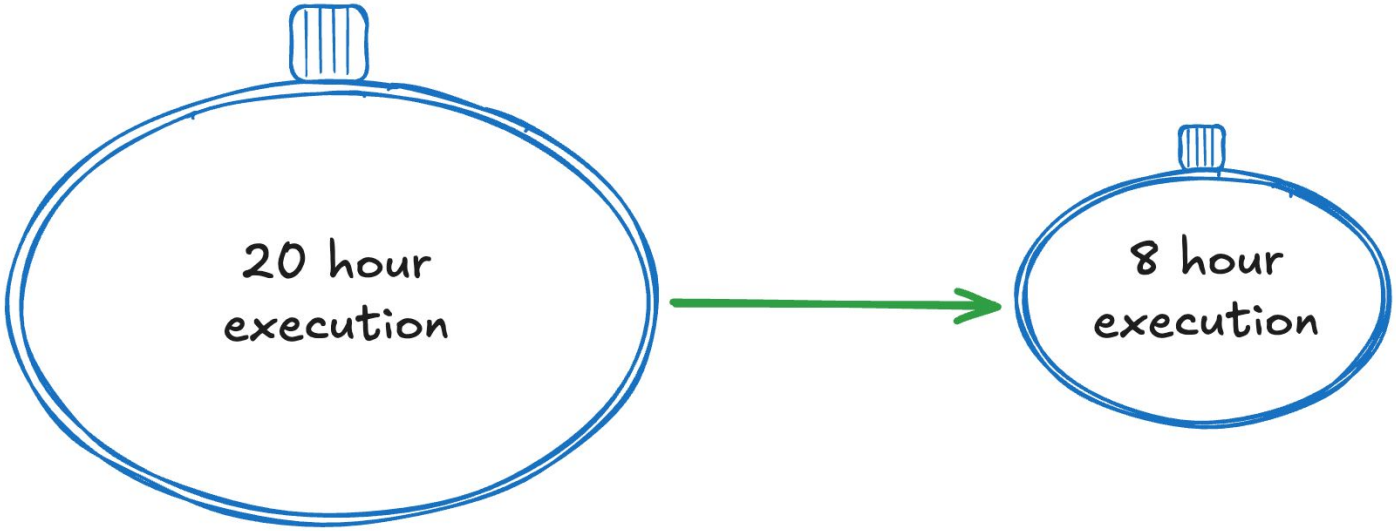



Website
Automated Test
Slow:
Enter data through UI
Fast:
Enter data through API
Service
Database

How much scaling is enough?

How would your operations improve if you could complete X amount of coverage in Y minutes?

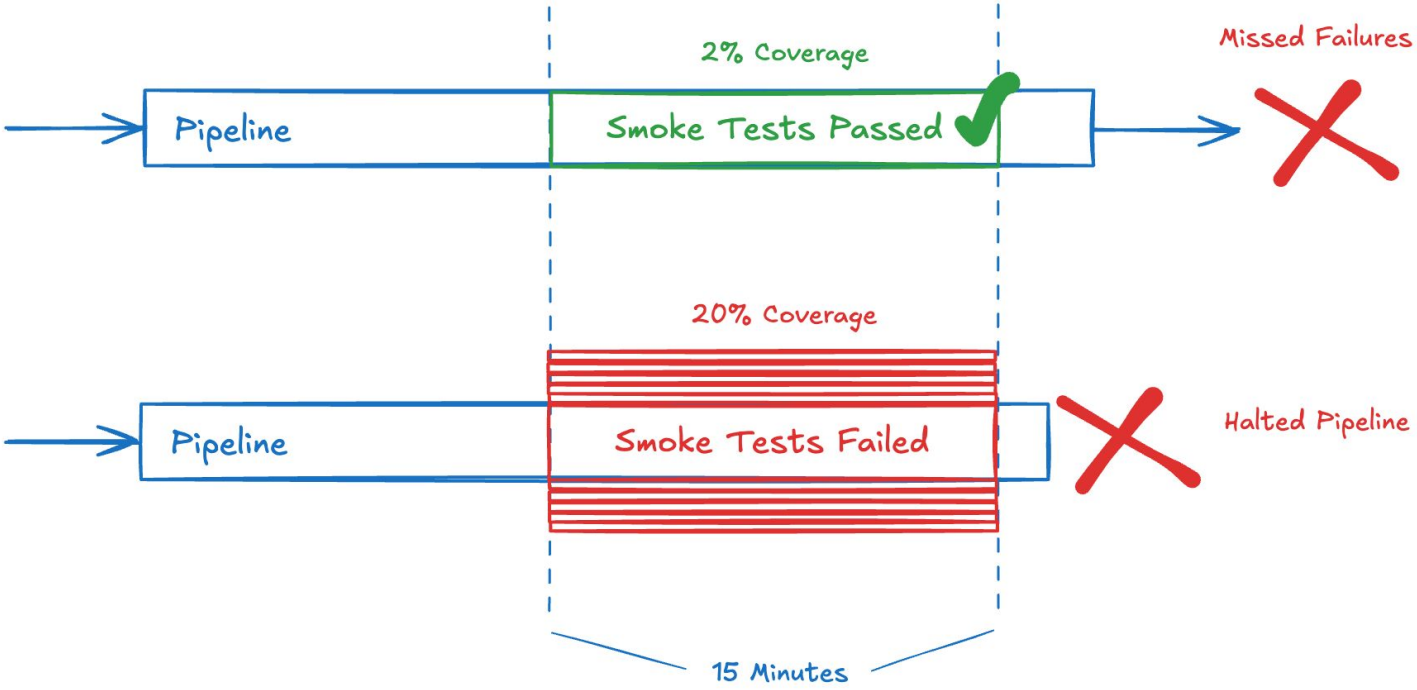
Long-Running Test Suite



Run once per sprint

Run nightly

More Smoke Test Coverage



Scaling Automated Tests to Infinity and Beyond

1. Run tests in parallel
2. Thoroughly implement proper waiting
3. Use performant test execution infrastructure
4. Write balanced atomic tests
5. Arrange tests efficiently

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