

Automation at the DVLA

TestBash Autumn 2023

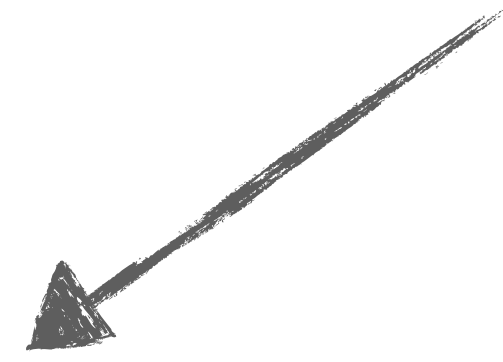
Nigel Brookes-Thomas & Alex O'Mahoney

Nigel Brookes-Thomas

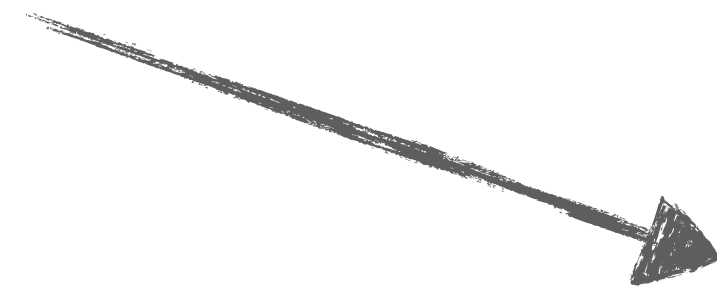
(Call me "NBT")

Principal Quality Engineer

Likes: dogs & sci-fi



Alex O'Mahoney
(Call me "Alexo")
Lead SDET
Likes: cats & football



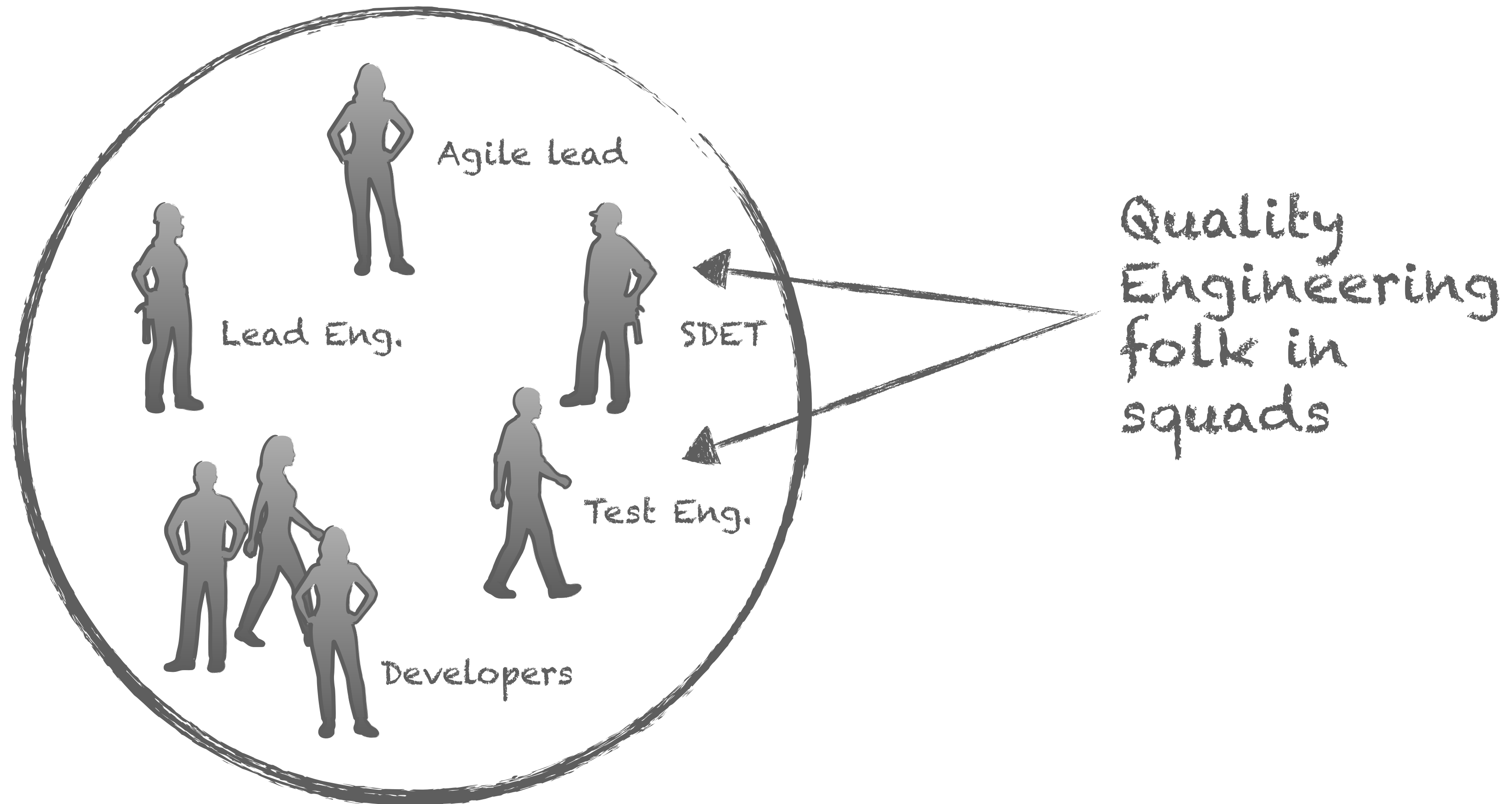
The numbers

The scale of the DVLA

- About 20 product squads + 4 cloud squads
- Last year, online, we transacted about
 - 7 million driving licences issued
 - 34 million driving licences issued
 - 3.2 billion enquiry API calls answered
 - £7.3 billion vehicle tax revenue collected

Product squads

Mixed of capabilities, about 8 people ± 2



More numbers

Development activity

- About 200 releases into production per month
- About 11,000 releases into non-production per month
- About 25,000 CI builds per month

Our Principles

The things we hold dear when automating testing

A vibrant rainbow arches across a clear sky, its colors transitioning from red on the left to violet on the right. Below the rainbow, the sun is positioned on the horizon, creating a warm orange and yellow glow. The foreground is filled with the dark, rippling surface of the ocean, which reflects the light from the sun and the rainbow. The overall scene is peaceful and serene.

We are nice

We are nice

To release quality software quickly and safely

- Although we are few, we are there to help everyone...
- ...but we sometimes have to defend doing the right thing
- Our community supports its people:
 - We meet and talk together a lot
 - Regular mix of sessions throughout the week and month
 - We take newbies and make SDETs

A vibrant field of colorful flowers, including yellow, orange, red, and purple blooms, stretches across the foreground. In the background, a bright sun is partially obscured by a tree, creating a lens flare effect against a blue sky with scattered white clouds. The overall scene is bright and cheerful.

Test early, test often

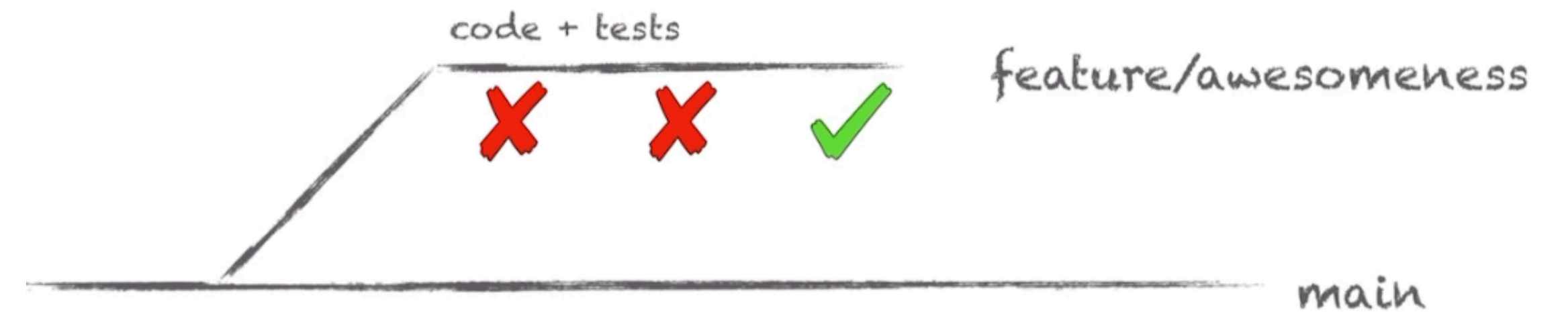
Test early, test often

How we bring forward testing as early as we can

- We value our automation code at least as highly as our production code
- We use Cucumber, but with very strict rules about how Gherkin is written (we use linters which will fail a build on bad specifications)
- We use Ruby as the programming language for test – the syntax is great for new learners, and the seniors love the power
- We build lots of our own tooling – we want to stay in control of our destiny

Test early, test often

Really early and very often



- Test code lives in the production repository
- Test code is authored on the same branch as the production feature
- You can't merge to main until your branch passes
- You can't merge to main until the regression pack passes
- The test code needs love and maintenance



Every test is an island

Every test is an island

Leave no trace

- It's very easy not to isolate your tests – a Bad Thing
- Each test / scenario must set up and tear down its own conditions and data
- Each test / scenario / example must be able:
 - To run alone
 - In serial
 - In parallel
 - Or not at all

Our packs run tests
in parallel and in a
random order

A large plume of white smoke or steam rises from a factory chimney, filling much of the upper half of the frame. The sky is a clear, vibrant blue, dotted with smaller, wispy white clouds. In the bottom right corner, the tops of two industrial chimneys are visible, one of which is actively emitting the large plume of smoke.

Factories over fixtures

Factories over fixtures

Baking a fresh set of test data each time

- Fixtures lose their value & maintaining them is yuck
- Build Factory objects that spit out fake but realistic data each run - adding the variability found in the wild
- Flakiness goes up (never "flakey test")
 - Not a problem if we're uncovering defects but must investigate
 - Record and replay factory data in dev to reproduce
- Add in some chaos into the API request's fields by flipping different combos of optional fields

A person wearing a red and blue costume with a yellow helmet is walking across a city street. The background is blurred, showing a brick building, a silver SUV, and other vehicles. The text "Mock almost nothing" is overlaid in white serif font across the center of the image.

Mock almost nothing

Mock almost nothing

Beyond unit testing, stubs lie

- No one gets excited about working on stubs
- Stubs are different enough that we avoid them unless
 - It's too expensive to do otherwise
 - There's no other choice (3rd parties for example)
- Our products are dockerised or serverless
 - Environments can be created on-demand and disposed of when finished – we can integrate early without stubs

Thank You

dvla.github.io