

EFFICIENT END-TO-END TESTING WITH PUPPETEER AND GRAPHQL SNAPSHOTS...

GraphQL Summit: Thu Oct 31 14:15:23 on ttys002

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SO MANY DEVELOPMENT BOTTLENECKS...

"an inefficiency where the flow of the project and/or work stops or slows at a particular point"

Code Review + QA + Teams + Fuzzy Spec + Regulation +
...conferences + Security + etc.

SPEEDY AND CHEEP E2E CLIENT TESTS...

PROBLEMS

- E2E tests slowest type of tests;
- E2E tests spend money (we use AWS Lambda);
- Sometimes E2E tests could be unstable by server-side reasons;

GOAL

- E2E tests for all basic user scenarios;
- E2E tests run on all merge requests, reducing bug discovery time;
- Reduce the cost of running E2E tests, if possible (API Calls);
- Reduce the occurrence of failed runs for **non**-client reasons.

JEST + PUPPETEER SOLUTION...

```
it('As a user, I can open page and do something.', async () => {  
  // Puppeteer listens to all requests and overrides responses  
  const page = await initPage(__BROWSER_CONTEXT__);  
  // Use Jest plugin to add handlers to Puppeteer page object to use/record mocks  
  await expect(page).toMatchPuppeteerRequestMocks();  
  // Open the page in headless browser  
  await page.open('http://localhost:3000');  
  // ...do something that's a test/important!  
  
  // Close page and plugin records collected  
  await page.close();  
});
```

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WHAT'S HAPPENING...

- 1) Page event listeners added the request, response and close events
- 2) **Requests** event counts requests to be saved on close.
- 3) **Response** collects pairs of requests and corresponding responses.
- 4) **Close** signals all request/response are collected and can get saved

```
1)  {
2)    "CompanyName": [
3)      {
4)        "request": {
5)          "operationName": "CompanyName",
6)          "variables": {},
7)          "query": "query CompanyName { companyName }"
8)        },
9)        "response": {
10)         "data": {
11)           "companyName": "8base"
12)         }
13)       }
14)     }
15)   ]
16) }
```

LETS RUN IT...

...about to make code happen /

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SOME LIGHT BENCHMARKING...

8base runs **200 E2E tests** for user scenarios in three modes:

- Use recorded requests mocks - merge requests and local checking;
- Use recording requests mocks - new tests and after server-side updates;
- On a real server - run locally for tests in release branches;

Time for modes:

- Recorded requests mocks - **developer laptop: ~390s, CI: ~230s;**
- Recording requests mocks - **developer laptop: ~954s, CI: ~600s;**
- Real server - **developer laptop: ~954s, CI: ~600s.**

2.5-times speed boost with no paralyzation/added checks, the ability to run tests without a server, and less money spent on AWS Lambda.

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REVISITING OUR GOALS LIST...

- ✓ E2E tests run on all merge requests, reducing bug discovery time;
 - ✓ Reduce the cost of running E2E tests, if possible (API Calls);
 - ✓ Reduce the occurrence of failed runs for **non**-client reasons.
- ...test for all basic user scenarios

TESTING FOR ALL BASIC SCENARIOS...

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EXIT STATUS 0...

Repo: Jest/Puppeteer Plugin: <https://github.com/8base/jest-mock-puppeteer-requests>

...thank you /

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