



**MAJOR**

**WELCOME**

**LEAGUE**

**TORONTO**

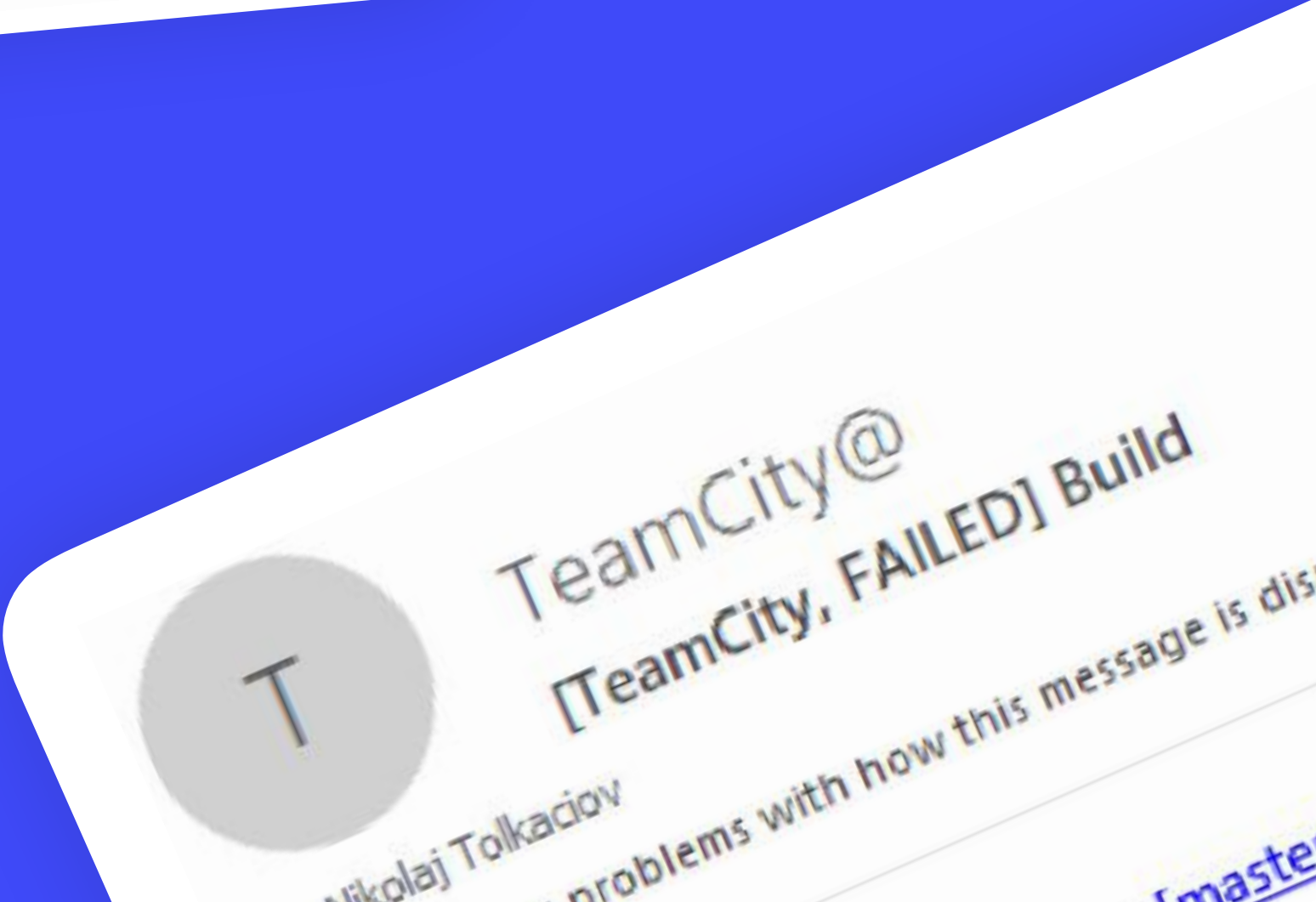
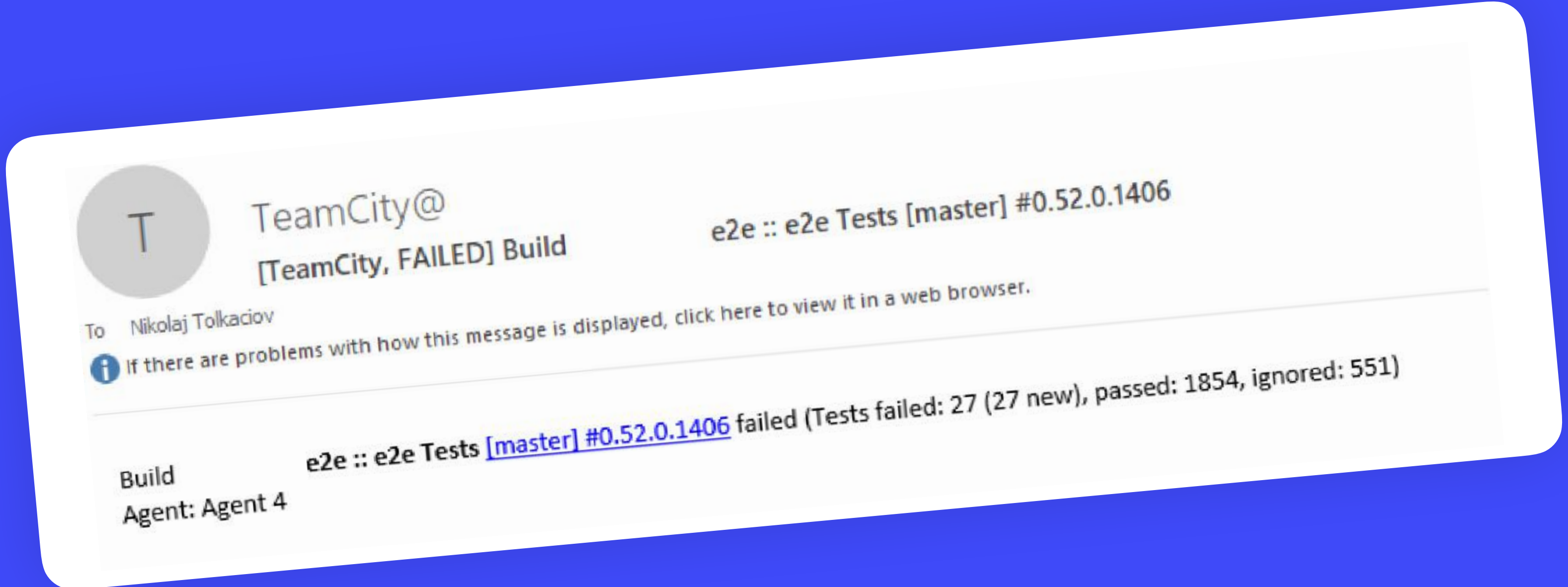
**CHICAGO**

**LONDON**

**KAUNAS**

**VILNIUS**

# 5 ways to boost your automation effectiveness



## Issues

- 1. Delusive test results**
- 2. Difficulty locating elements**
- 3. Test data maintenance**
- 4. Demanding test infrastructure**
- 5. Overcomplicated code**

*Developer*  
*Home-brew*  
*Automation*

**5+ years**

**Who am I?**

*International*  
*Fortune 500*  
*70+ test engineers*

**5+ years**  
**Devbridge**

**Who am I?**

***30+ engineers***

***4 scrum teams***

***Bi-weekly releases***

**5+ years**

**Devbridge**

**30+ (at peak)**

**Who am I?**



# Issue #1

# Delusive test results

### Global Finance

Resources	Balance Value (\$)
<b>Future Benefits</b>	2,568,790
Jeweler - Social Security	576,815
Jonathan - Social Security	869,870
CSP - Savings via 401-k company	61,050
CSP - Savings - Personal	421,045
RUCR - Health - Bonus	179,984
<b>Future Savings</b>	690,144
Jeweler - 5 second ear	275,750
Jonathan - Savings	98,420
Contributions - Jonathan	244,153
Reward	75,380
<b>Brokerage/Bank Accounts</b>	846,579
Trevor's Brokerage Acct	237,659
Jeweler - Individual Savings	563,980
Savings account	45,000
<b>Retirement Account</b>	461,771
Jeweler - Bonus	182,790
Jonathan - Contribution	278,981
<b>Total Resources</b>	4,567,284

### Stock Market Strategy

Marketing strategy's goal is to increase sales and achieve advantage over other competitors. It includes short term and long term activities of marketing that has to do with the analysis of a company's situation and contribute to it's objectives. The objectives will depend on how you gain sales by acquiring and keeping customers. A marketing strategy helps in making good messages with the right twist of marketing approaches in order to have a good outcome of your sales and marketing activities. Putting your strategy into action is how your marketing plan should work. Marketing budgets will be set, at the same time it will also show you how you're going to work with your targets, etc.

Year	Sales	Revenue
2014	250	200
2015	280	220
2016	300	240
2017	320	260
2018	350	280

### Invested in

...based on how you gain... customers. A marketing... good messages with... approaches in order to... your sales and marketing...

Putting your strategy into action is how your marketing plan should work. Marketing budgets will be set, at the same time it will also show you how you're going to work with your targets, it maybe through networking, advertising etc. Having the perfect timing with your activities to fit your customers buying cycles will help you saving money and maximizing sales. The marketing plan should be innovative. It should have the details on how your sales are followed up and the activities your doing to develop your offers.

Lastly, improvement should be measured regularly and assessed in order for you to know what's beneficial and what is not. This will help you...

# THE DAILY

## FAKE NEWS

### ECONOMY OF THE EUROPEAN UNION

WORLD BANK'S STOCK AT ALL-TIME HIGH / US RATE RISE CHANCES RECEDE AS JOBS GROWTH SLOW

#### US RATE RISE CHANCES RECEDE AS JOBS GROWTH SLOW

It is a process to allow an organization to focus resources on the greatest opportunities to increase sales and achieve the company's target. Marketing strategy's goal is to increase sales and achieve advantage over other competitors. It includes short term and long term activities of marketing that has to do with the analysis of a company's situation and contribute to it's objectives. The objectives will depend on how you gain sales by acquiring and keeping customers. A marketing strategy helps in making good messages with the right twist of marketing approaches in order to have a good outcome of your sales and marketing activities. Putting your strategy into action is how your marketing plan should work. Marketing budgets will be set, at the same time it will also show you how you're going to work with your targets, etc.

#### WORLD BANK'S STOCK AT ALL-TIME HIGH

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#### THE WORLD IS MESSED UP

REUTERS/GETTY IMAGES/ARND BRONKHORST



Issue #1 **Delusive test results. False - Positive results.**

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 **NEGATIVE**

- Demotivate team members
- Waste time
- Decrease effectiveness
- Might hide actual bugs

 **POSITIVE**

- + You get emails \*

\*Only positive if you're in need of communication

# Possible solutions

- Make automated test stable
- Rewrite test cases
- Disable randomly failing ones and do them manually





An aerial photograph of a modern residential complex. The image shows several high-rise apartment buildings with white facades and dark window frames. The buildings are arranged in a cluster, with some featuring green roofs and balconies. There are courtyards and landscaped areas between the buildings, including a tennis court and a swimming pool. The overall scene is a dense urban environment with a focus on greenery and modern architecture.

**Issue #2**

**Difficulty locating elements**



## Issue #2 Difficulty locating elements. Injecting custom locators.

---

```
▼<div class="label-and-value">  
  <div class="label-wrapper ng-scope">Account Executive</div>  
  <div class="value-wrapper e2e-order-account-executive ng-binding">Test User</d  
</div>
```

SUM

## Issue #2 Difficulty locating elements. Injecting custom locators.

---

obj/tasks.js

```
1 + module.exports = {  
2 +   //DOM elements  
3 +   createTaskButton : '[class="btn"]',  
4 +   nameFilter : '/html/body/div[1]/div/div[2]/div/div/section/div/div[1]/di
```

Issue #2 **Difficulty locating elements. Injecting custom locators.**

---

 **POSITIVE**

- + More independency from developers
- + Cleaner test code
- + More flexibility in selecting required elements
- + With developer participation this might D.O.R.

 **NEGATIVE**

- Takes time to add
- Require basic HTML knowledge



**Issue #3**

**Test data maintenance**



**Quiz**

# How you manage your test data?

- A. I don't use any test data, my tests are not requiring test data setup
- B. I use same e2e steps to prepare data for tests
- C. I use API calls to setup data
- D. I use SQL scripts to setup data
- E. I use DB backup and restore it before each run





 **POSITIVE**

- + Fast and reliable test data preparation
- + Easy test data management
- + No garbage data
- + Less maintenance in a long run

 **NEGATIVE**

- Takes time to implement



**Issue #4**

**Demanding test infrastructure**



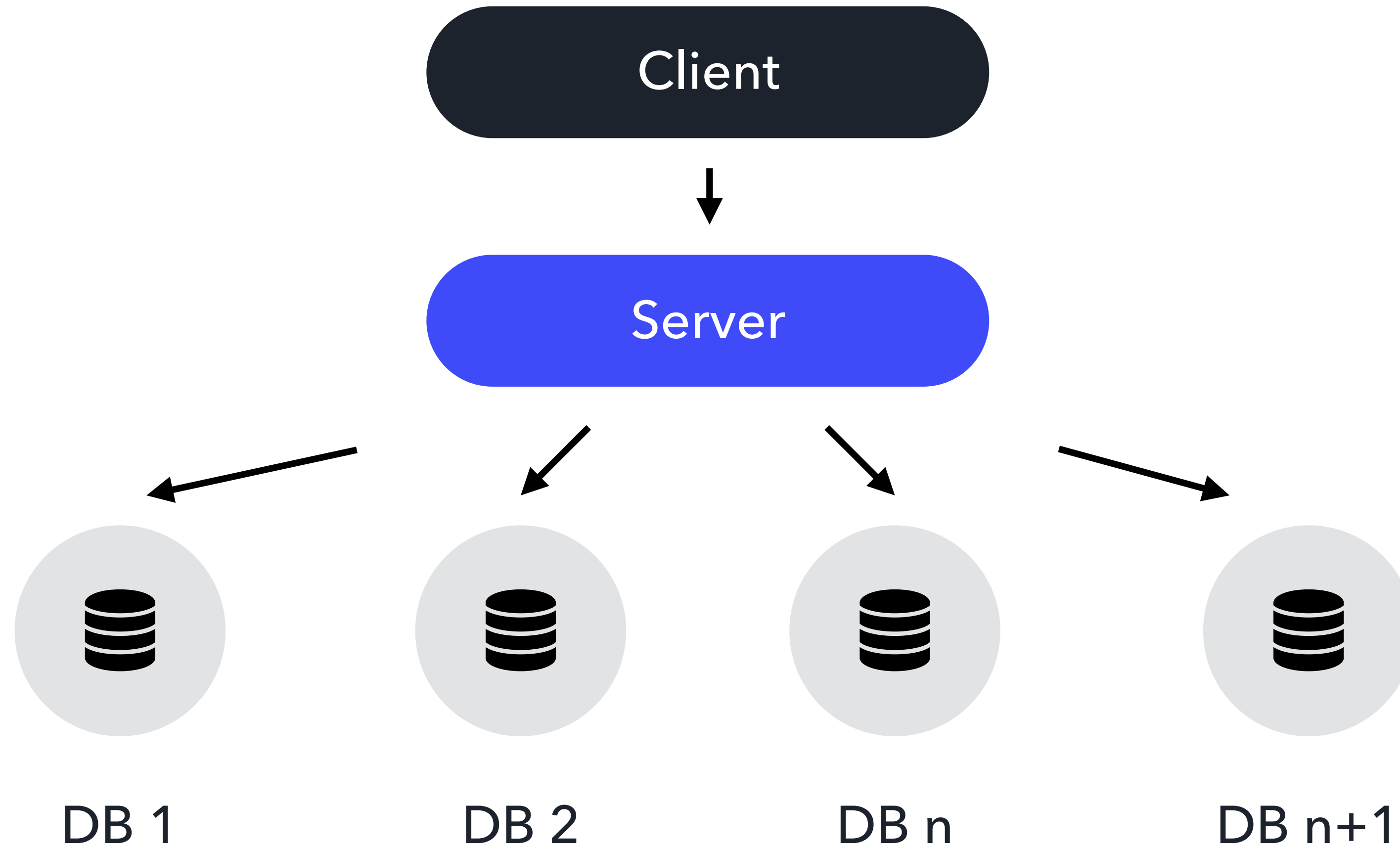
# Are you into DevOps?

- A. Automate boring and repetitive tasks.
- B. Reduce human error probability.
- C. Speed up workflows.
- D. Work towards self-sufficient test automation.





# We use Database Routing



## Issue #4 **Demanding test infrastructure. Database Routing.**

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### **POSITIVE**

- + Automated and manual testing same builds
- + Less environments
- + Scale development slots if needed

### **NEGATIVE**

- Takes time to implement
- Not all builds are tested





**Issue #5**


**Overcomplicated code**



**Can automated test's code  
be inferior quality  
compared to  
application under test?**



# Key principles

- Reading your code should be pleasant.
    - Variables and functions - self explanatory.
    - Functions - focused, short and reusable.
    - Global patterns, coding style and conventions.
    - Perform code reviews.
    - DRY rule.
    - KISS principle.
- 

**Is there any benefit from  
keeping code clean?**

**Clean code is easier to  
collaborate on**



**Clean code is easier to  
refactor**

**Clean code is easier to  
augment**



**Clean code is easier to  
maintain**

**Clean code is easier to  
port**



**Clean code is easier to  
scale**

**Collaborate**

**Refactor**

**Augment**

**Maintain**

**Port**


**Scale**







# How to do it?



Make some  
research

Participate in  
workshops

Ask  
developers



# Collaboration with developers



**BIGGER ARSENAL  
OF TOOLS AND  
SOLUTIONS**

**BETTER CODE**

**BETTER  
DEBUGGING**

**COMPLEX  
IMPLEMENTATIONS**

**Is it all only  
positive experience  
when collaborating with  
developers?**



- `"uninitialized": "always"` requires one variable declaration for uninitialized va
- `"uninitialized": "never"` requires multiple variable declarations for uninitializ
- `"uninitialized": "consecutive"` requires consecutive variable declarations for

## always

🔗 Examples of **incorrect** code for this rule with the default `"always"` option:

```
/*eslint one-var: ["error", "always"]*/  
/*eslint-env es6*/  
  
function foo() {  
  var bar;  
  var baz;  
  let qux;  
  let norf;  
}
```

👍 Examples of **correct** code for this rule with the default `"always"` option:

```
/*eslint one-var: ["error", "always"]*/  
/*eslint-env es6*/  
  
function foo() {  
  var bar,  
    baz;  
  let qux,  
    norf;  
}
```

Protractor/obj/order/order.js

Reverse hunk

```
225 225
226 226 //Functions:
227 227   getTestOrderOverviewPage: function (index) {
228      -   browser.get('/#/orders/' + _.map(ordersPage.testOrderIds, function (order) { return order.id; })[index]);
228      +   browser.get('/#/orders/' + ordersPage.testOrderIds[index].id);
229 229   },
230 230
231 231   getTestOrderIdByName: function (name) {
```



```

const _ = require('lodash');

/**
 * @class
 * @param {string[]} headers
 * @param {Array.<Array.<string>>} data
 */
const DataTableWithHeaders = function (headers, data) {
  /**
   * @returns {Array.<Array.<{value: string, header: string}>>}.
   */
  this.getDataRows = function () {
    return _map(data, (row) => _map(row, (column, index) => ({ header: headers[index], value: column })));
  }

  /**
   * @returns {Array.<string>}.
   */
  this.getHeaders = function () {
    return headers;
  }

  this.get = function () {
    return _.concat(headers, data);
  }

  /**
   * @param {string} header
   * @returns {Array.<string>}
   */
  this.getColumnValues = function (header) {
    const index = _.indexOf(headers, header);
    return _map(data, (row) => row[index]);
  }
};

```

## Summary

- 1. Reduce False-Positive results to zero**
- 2. Injecting custom locators to the application**
- 3. Database restoring for test setup and tear-down**
- 4. Invest into infrastructure for E2E tests**
- 5. Promote clean code practices**



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**Questions?**





**Thank You.**

**Nikolaj Tolkačiov**  
*Lead Test Engineer*