



# DevFest

## 前端工程化体系建设



迷渡 (justjavac)

<https://github.com/justjavac>

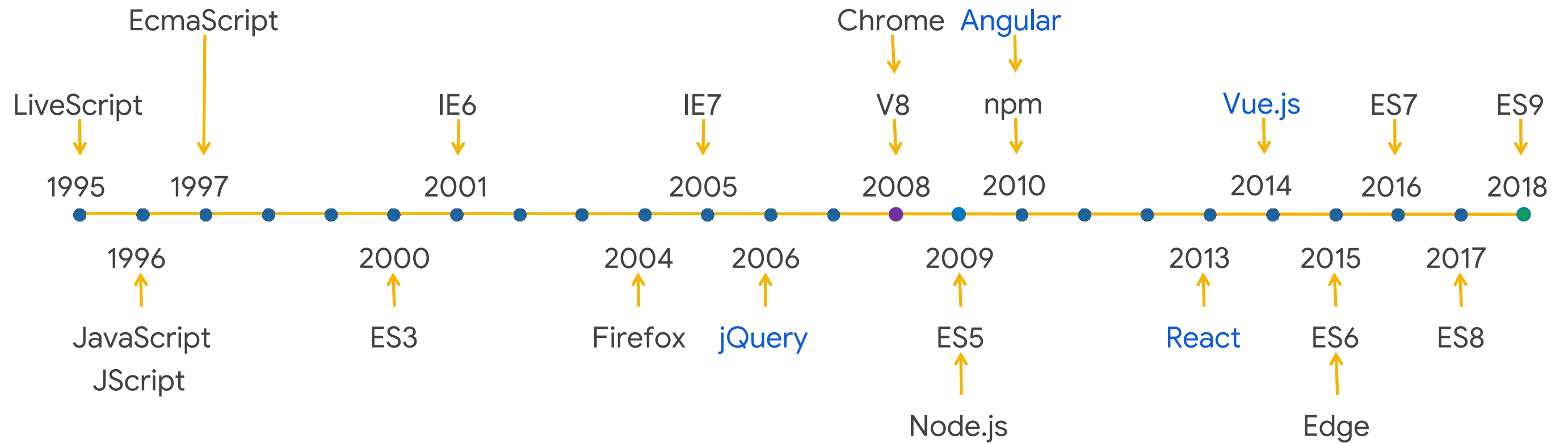



# JavaScript

## 历史、现在与未来



# history of JavaScript

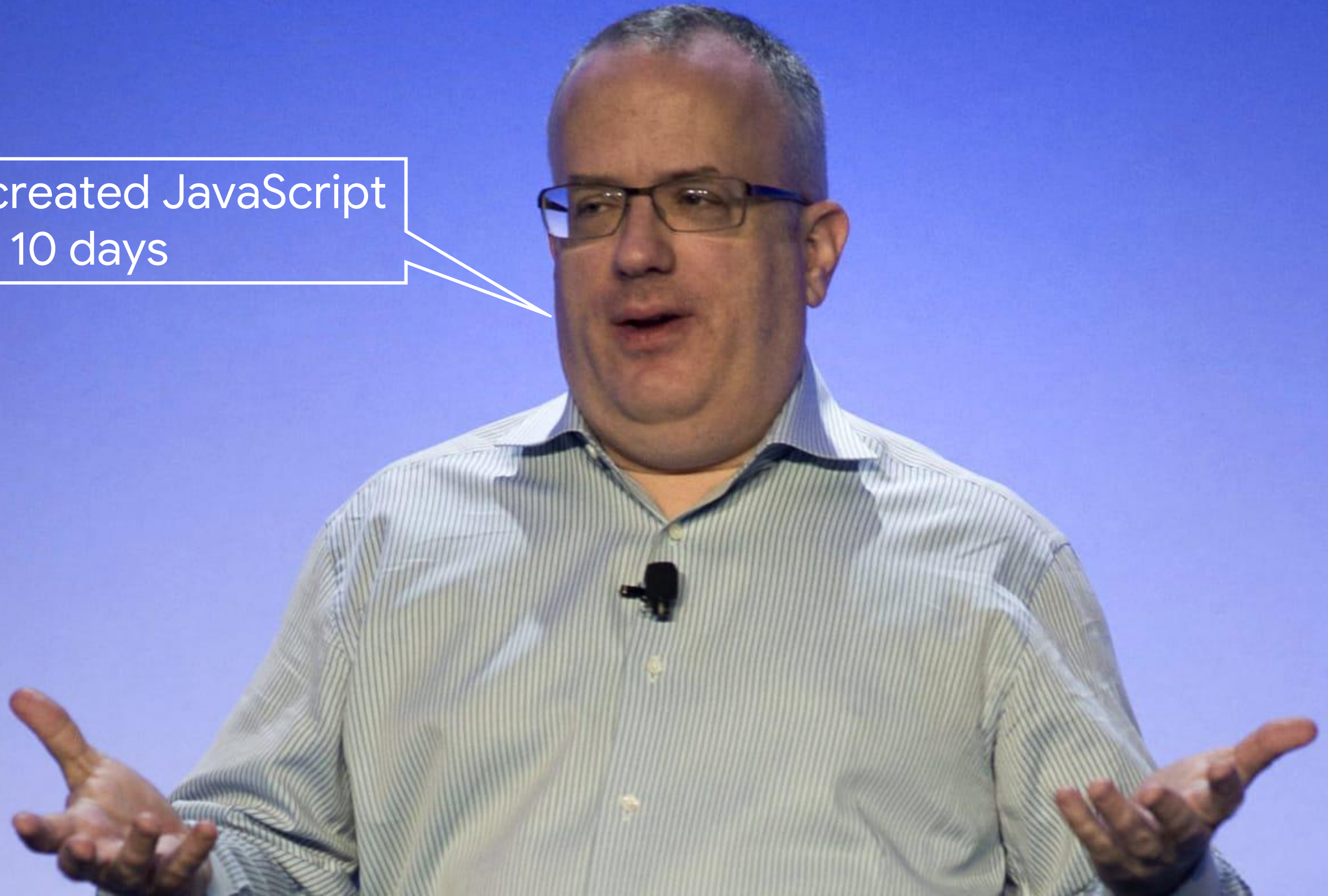




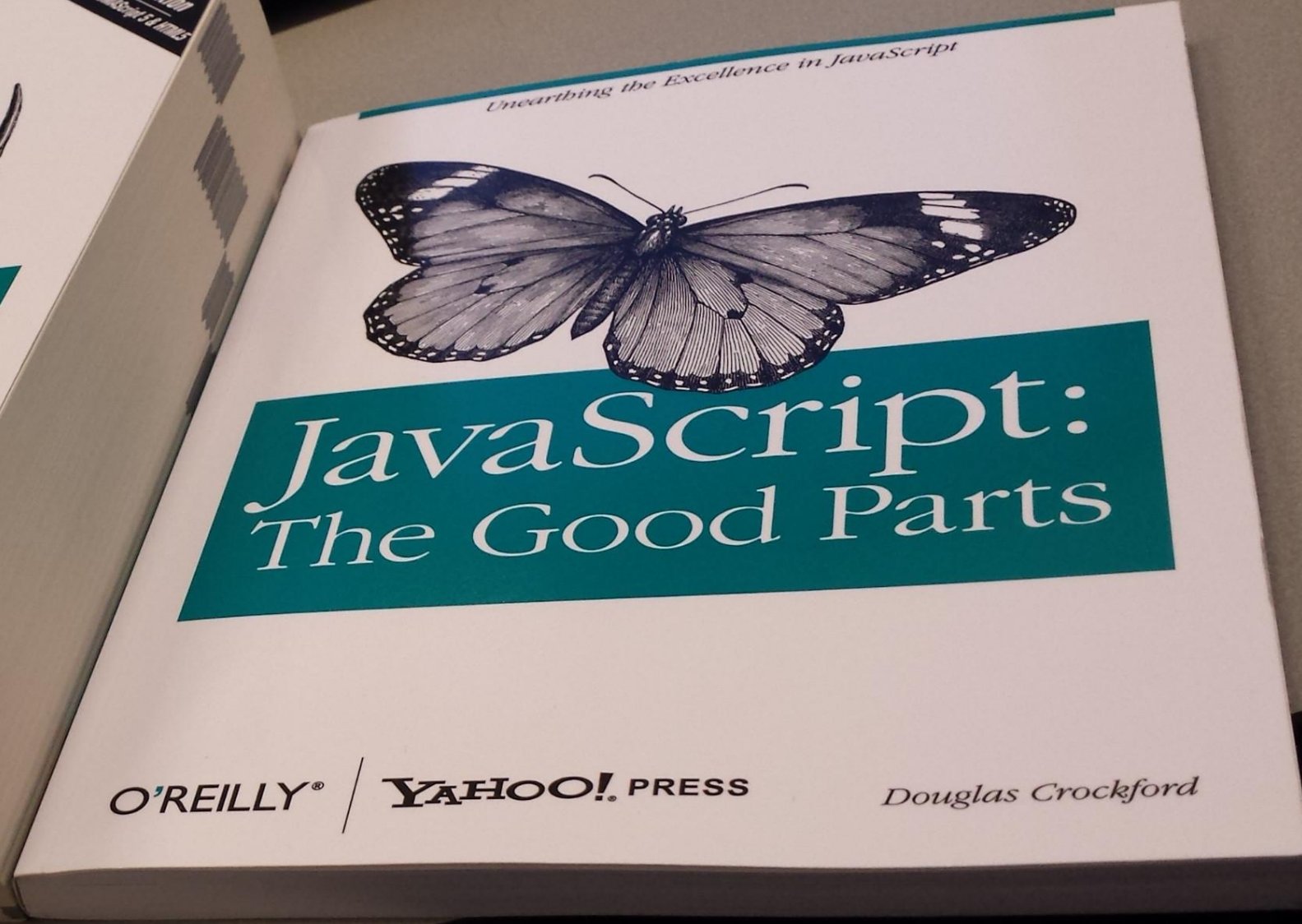
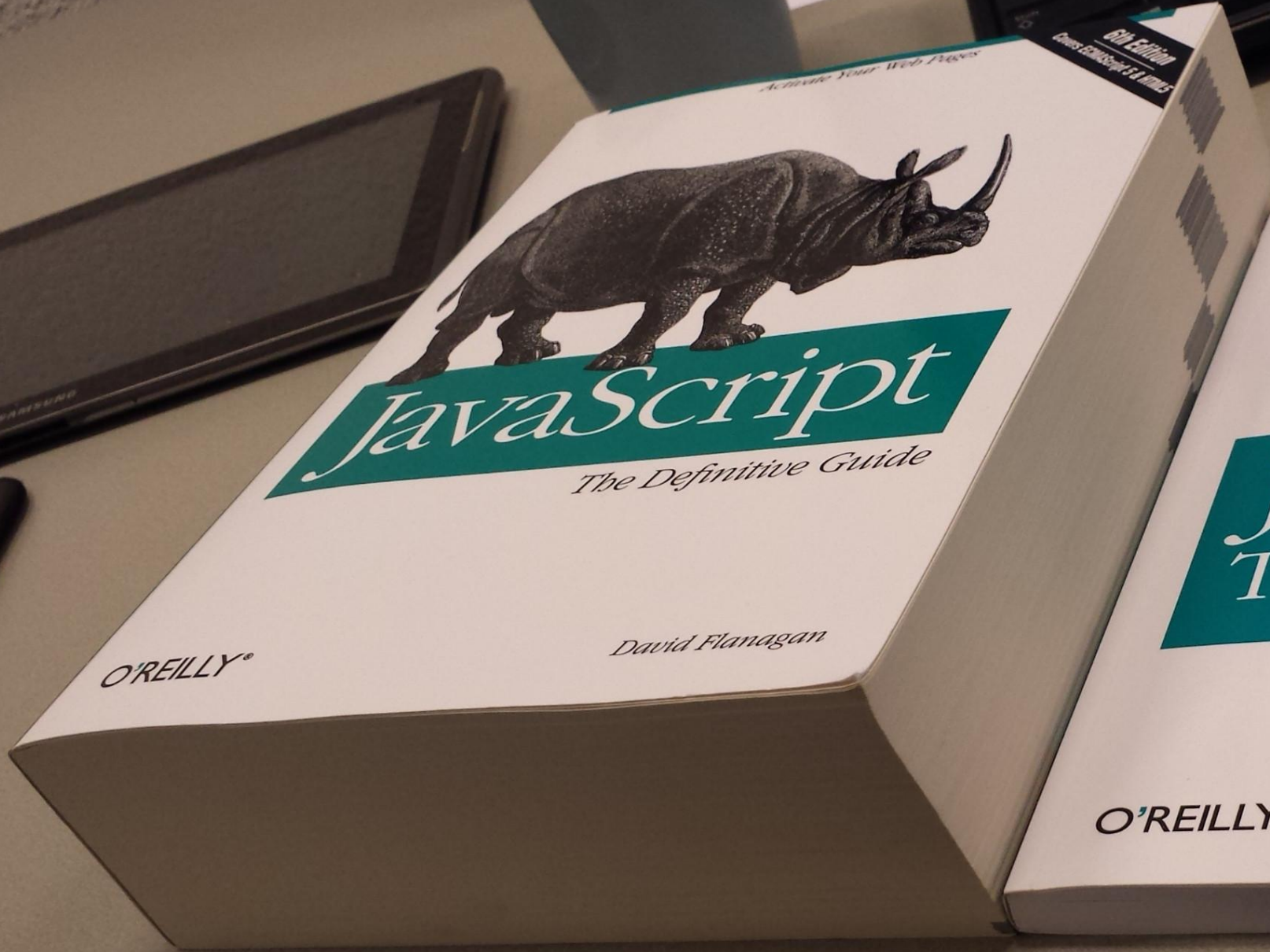
“any application that can be written  
in JavaScript, will eventually be  
written in JavaScript.”

- Atwood 定律

I created JavaScript  
in 10 days







bug or feature?



```
typeof null === 'object'; // WTF?
```

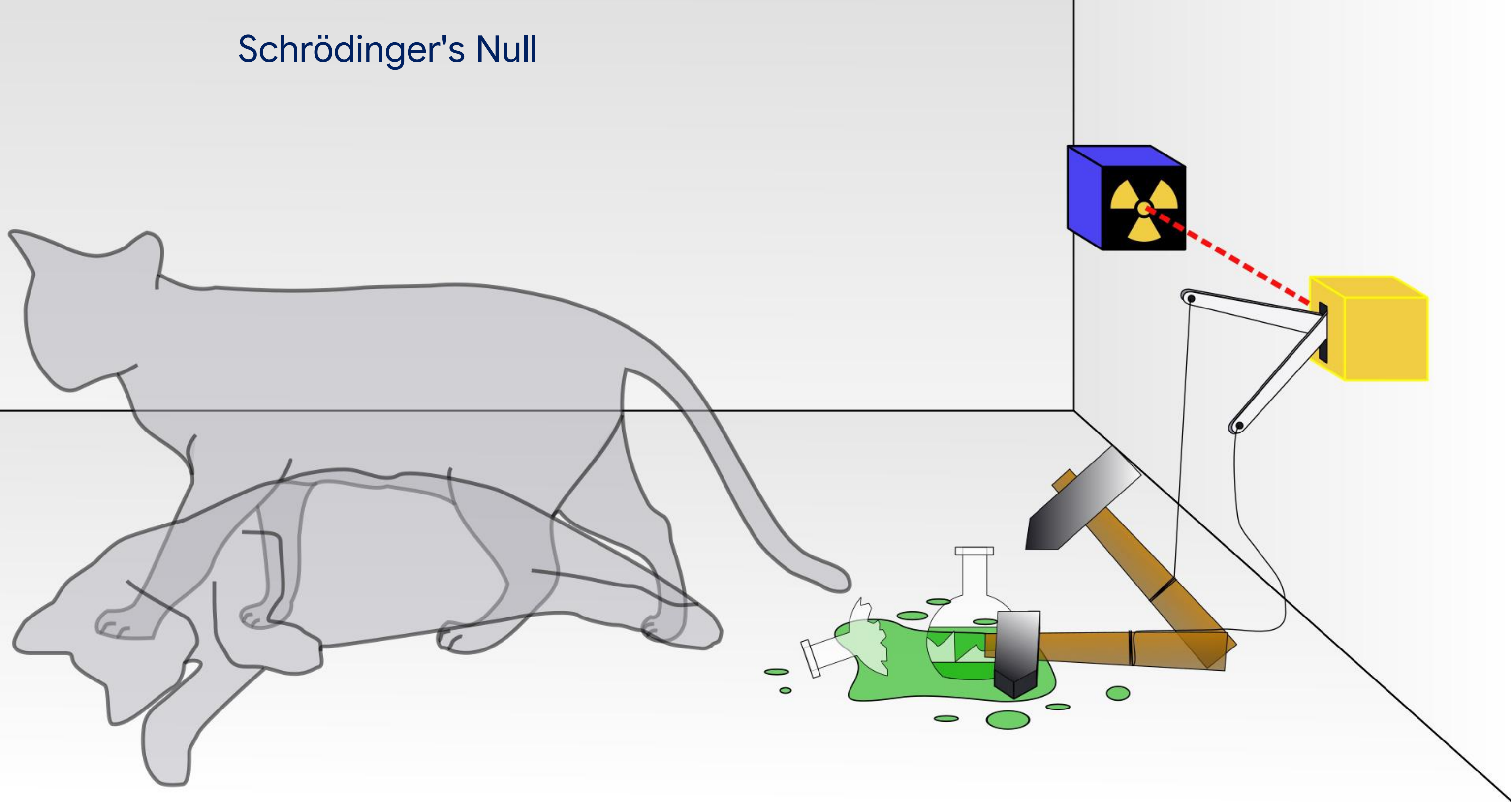
```
null instanceof Object === false; // WTF??
```

```
null instanceof null;
```

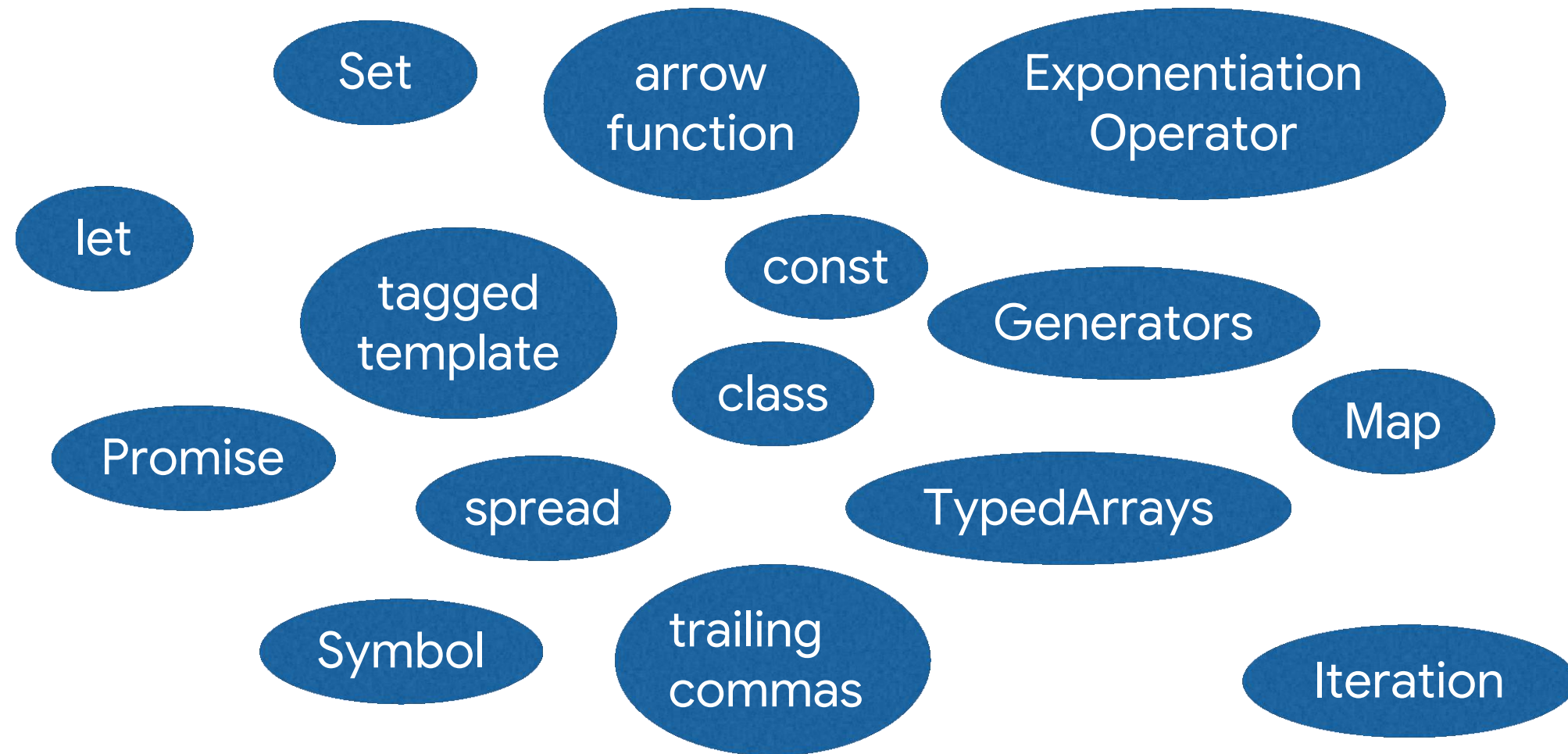
```
// TypeError: Right-hand side of 'instanceof' is not an  
object WTF???
```

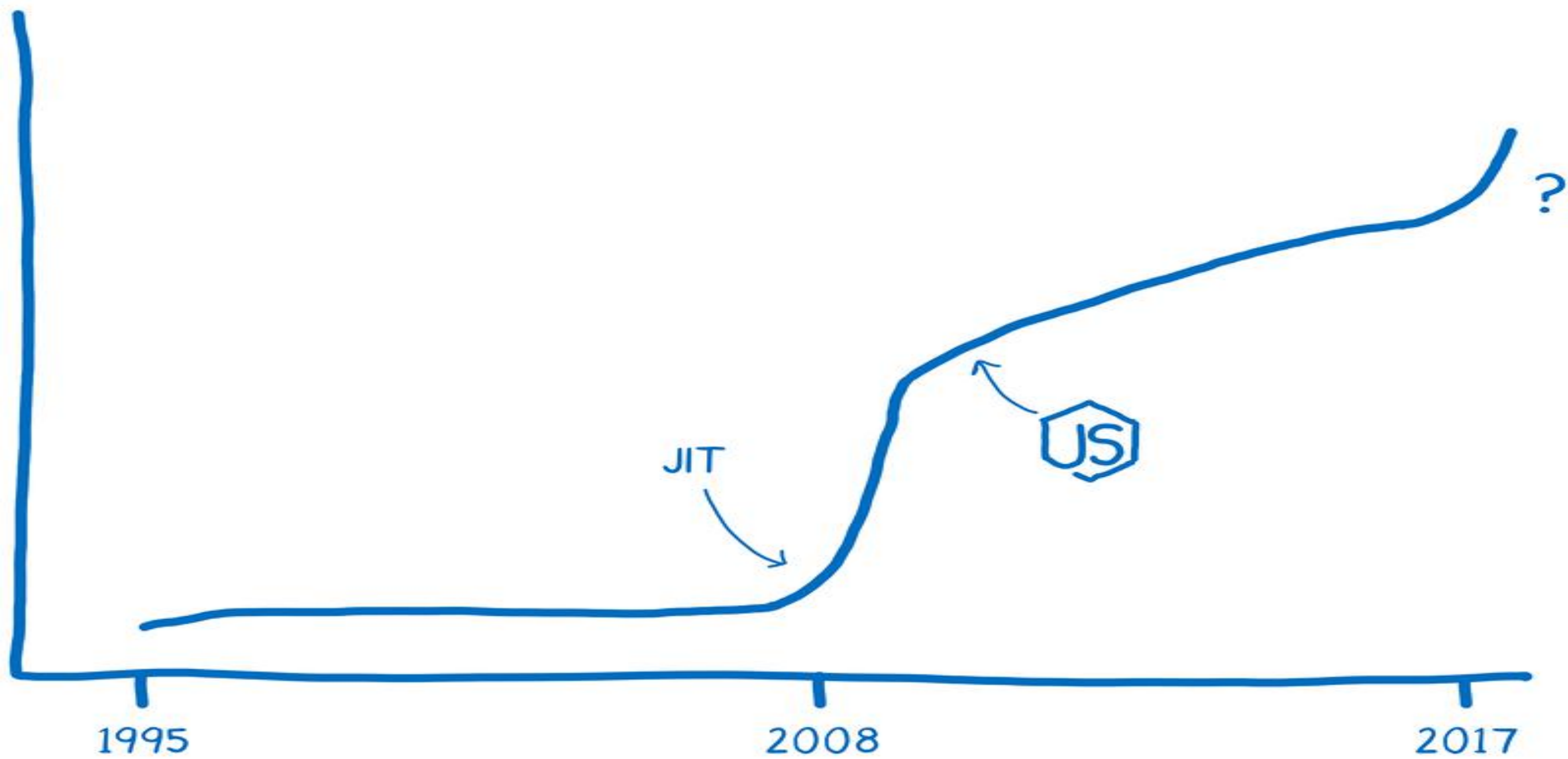


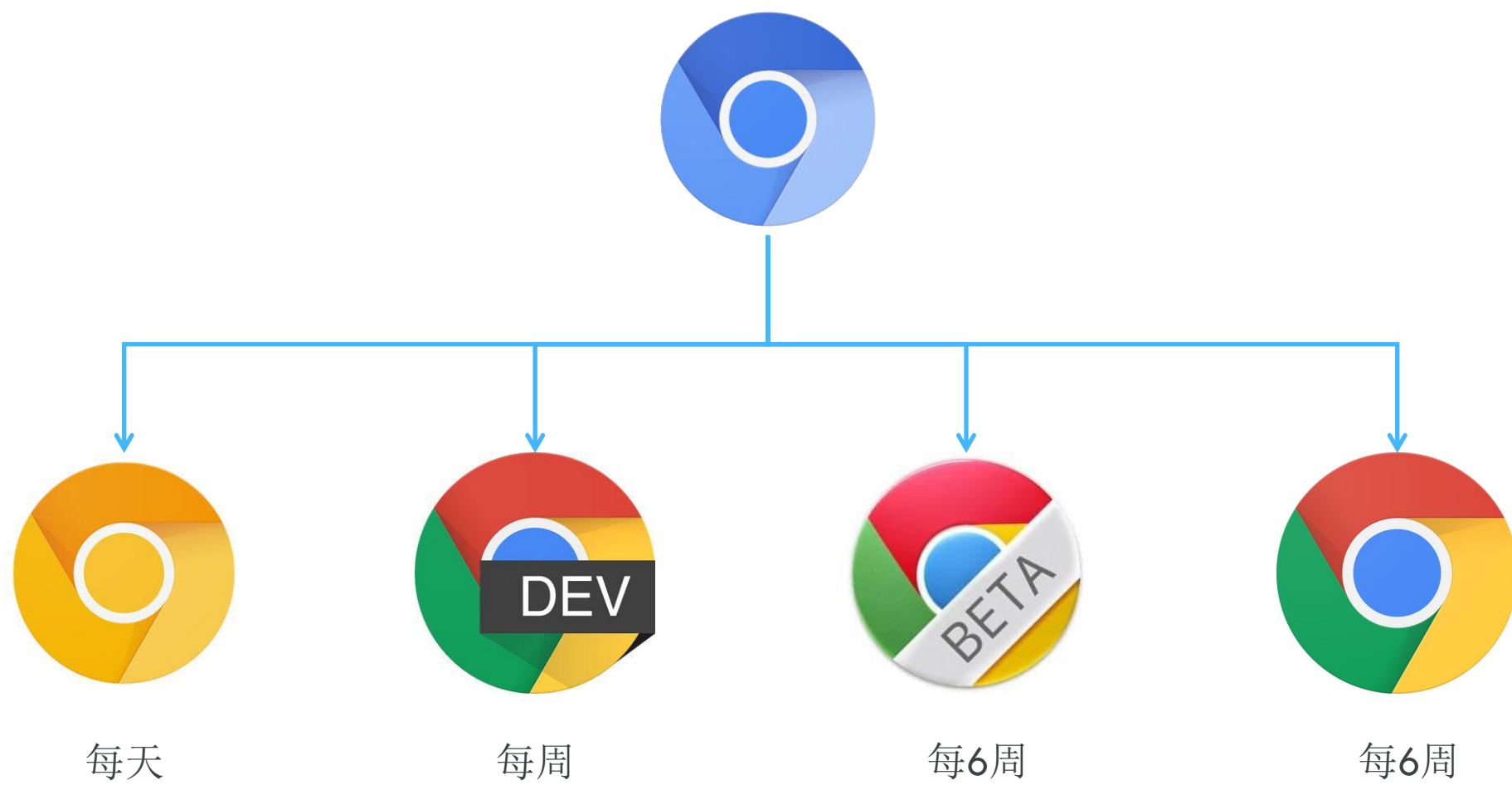
# Schrödinger's Null



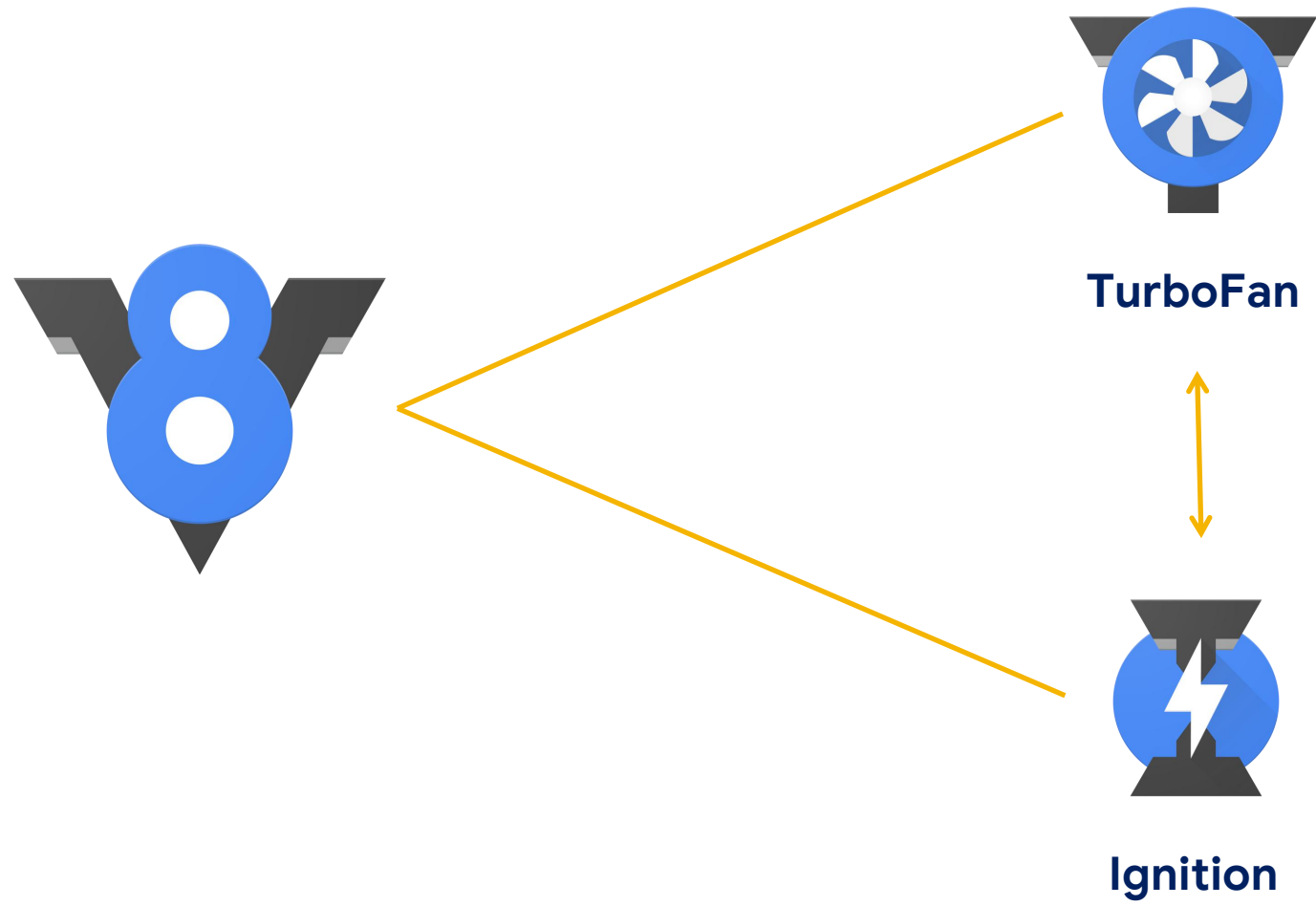
# ES201x

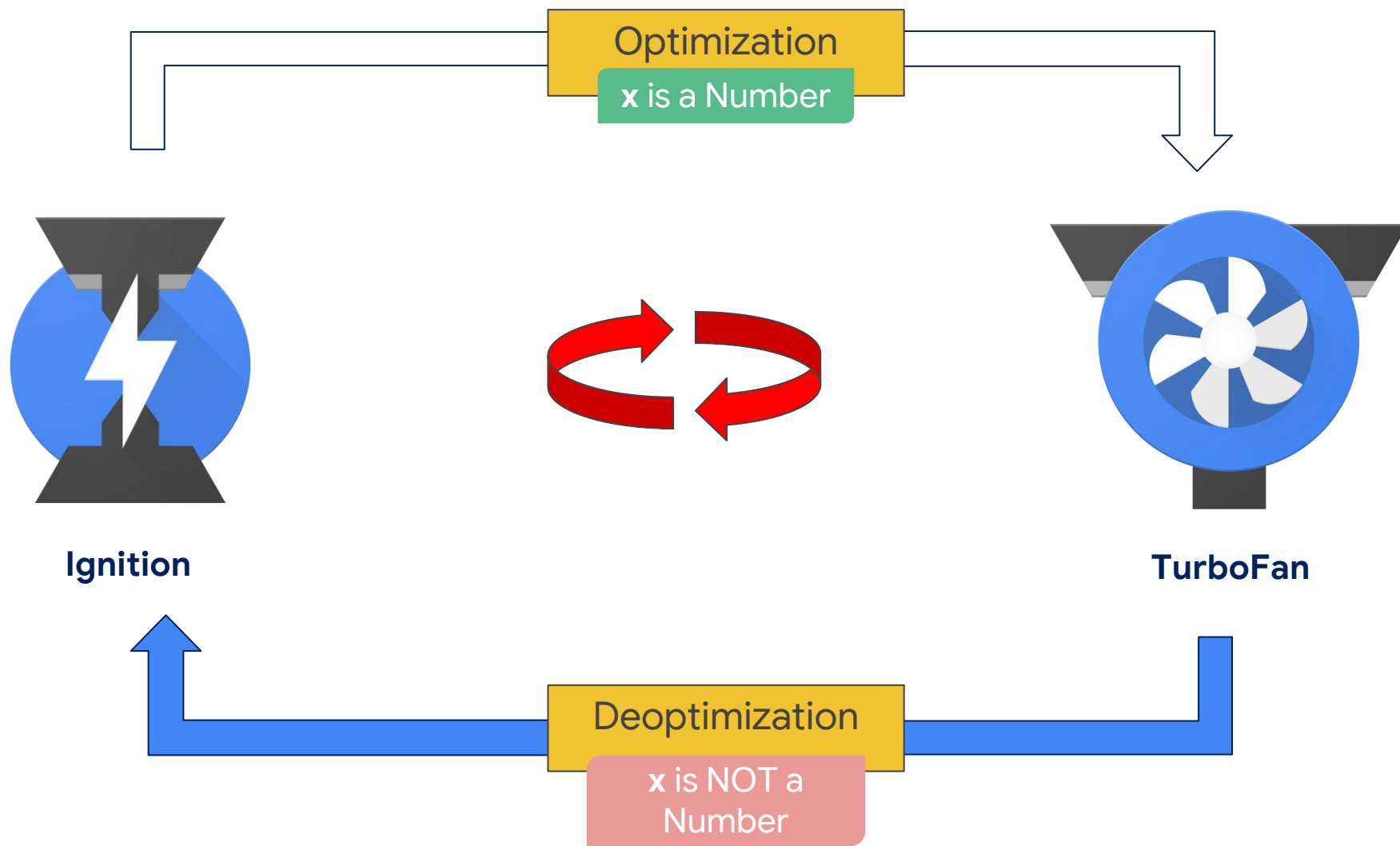












# 高性能 JavaScript

根据 V8 引擎的优化原理编写 JavaScript 代码，尽量让引擎将 JavaScript 源代码编译为本地机器代码，避免引擎的去优化（deopt）操作。编译器比解释器运行速度更快



# 不要修改原型链

```
> const o = {a:1,b:2};
```

```
< undefined
```

---





# 不要修改原型链

```
> const o = {a:1,b:2};  
< undefined  
  
> console.time('fast');  
  for (let i = 0; i < 1e7; ++i) {  
    for (const x in o) {}  
  };  
  console.timeEnd('fast');  
fast: 59.775146484375ms  
< undefined
```



# 不要修改原型链

```
> const o = {a:1,b:2};  
< undefined  
  
> console.time('fast');  
  for (let i = 0; i < 1e7; ++i) {  
    for (const x in o) {}  
  };  
  console.timeEnd('fast');  
fast: 59.775146484375ms  
  
< undefined  
  
> Object.prototype.c = 0;  
< 0
```



# 不要修改原型链

```
> const o = {a:1,b:2};  
< undefined  
  
> console.time('fast');  
  for (let i = 0; i < 1e7; ++i) {  
    for (const x in o) {}  
  };  
  console.timeEnd('fast');  
fast: 59.775146484375ms  
< undefined  
  
> Object.prototype.c = 0;  
< 0  
  
> console.time('slow');  
  for (let i = 0; i < 1e7; ++i) {  
    for (const x in o) {}  
  };  
  console.timeEnd('slow');  
slow: 7266.184814453125ms  
< undefined
```

100x



# Object.keys()

```
> const o = {a:1,b:2};  
< undefined  
  
> console.time('fast');  
  for (let i = 0; i < 1e7; ++i) {  
    for (const x of Object.keys(o)) {}  
  };  
  console.timeEnd('fast');  
fast: 246.964111328125ms  
  
< undefined  
  
> Object.prototype.c = 0;  
< 0
```





# Object.keys()

```
> const o = {a:1,b:2};  
< undefined  
  
> console.time('fast');  
  for (let i = 0; i < 1e7; ++i) {  
    for (const x of Object.keys(o)) {}  
  };  
  console.timeEnd('fast');  
fast: 246.964111328125ms  
< undefined  
  
> Object.prototype.c = 0;  
< 0  
  
> console.time('slow');  
  for (let i = 0; i < 1e7; ++i) {  
    for (const x of Object.keys(o)) {}  
  };  
  console.timeEnd('slow');  
slow: 241.490966796875ms  
< undefined
```

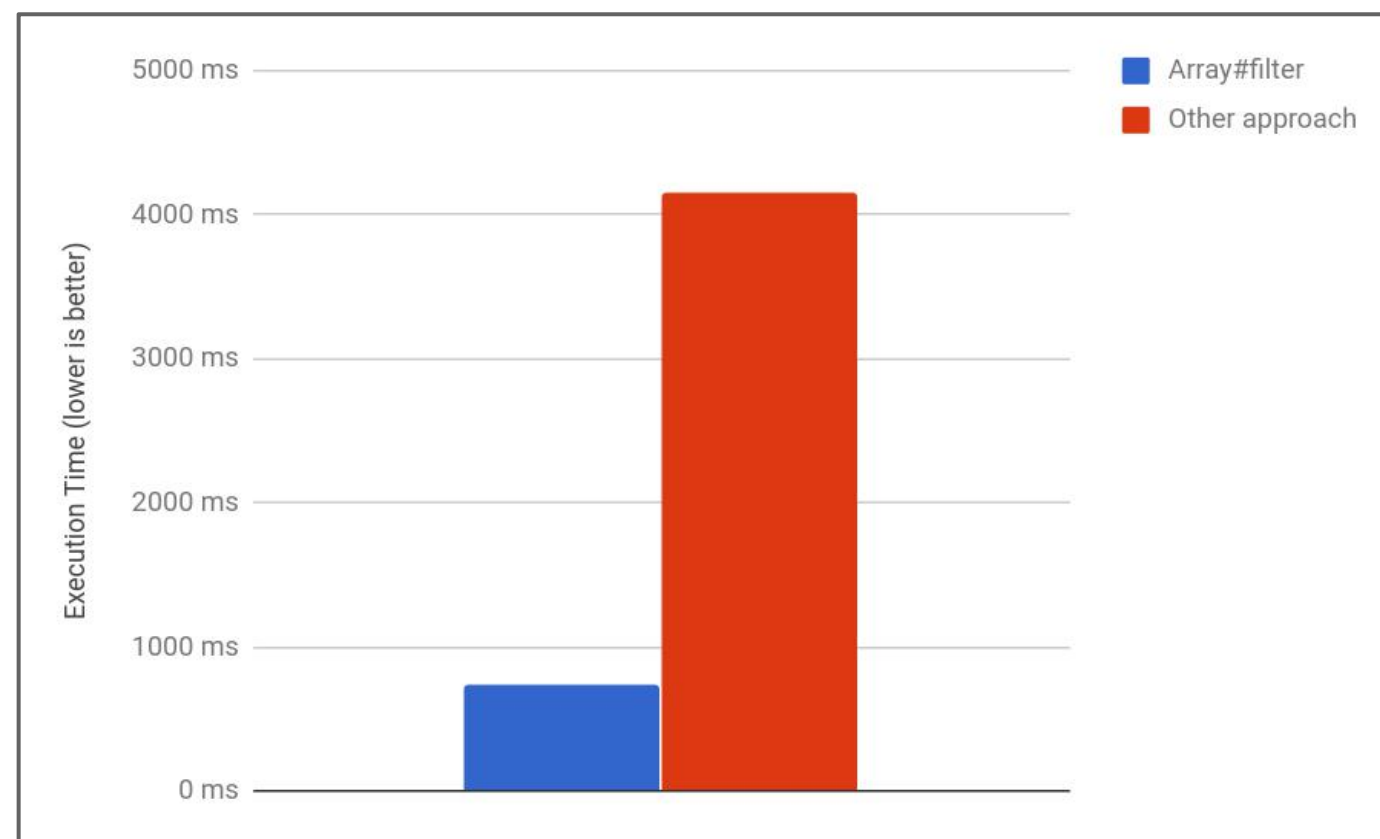
1x



# 不要在遍历时修改元素



```
arr.forEach((x, i) => {  
  if (x > 50) {  
    A[i] = undefined;  
  }  
});
```



引擎的性能也在不断改进



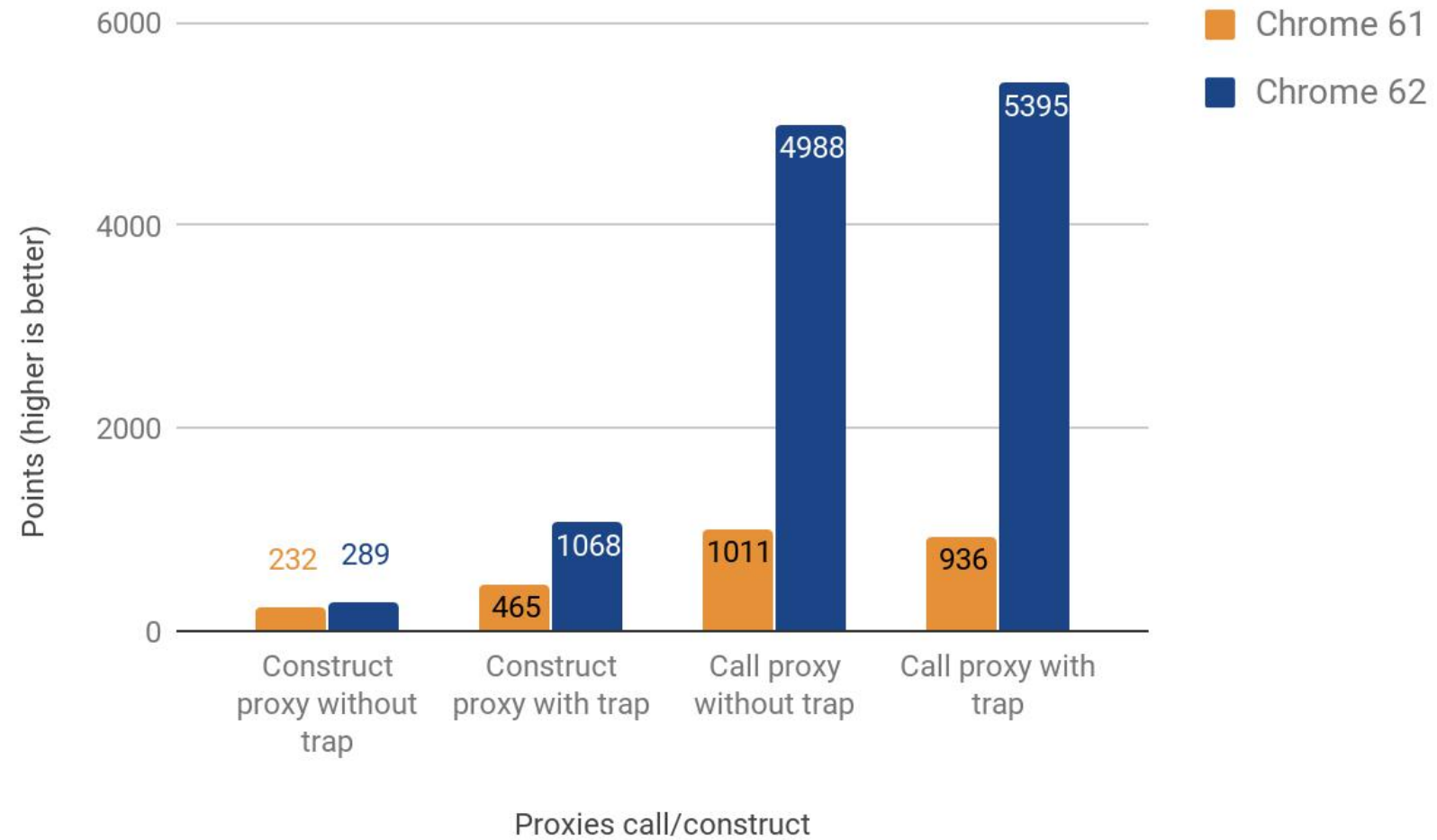
举一个栗子



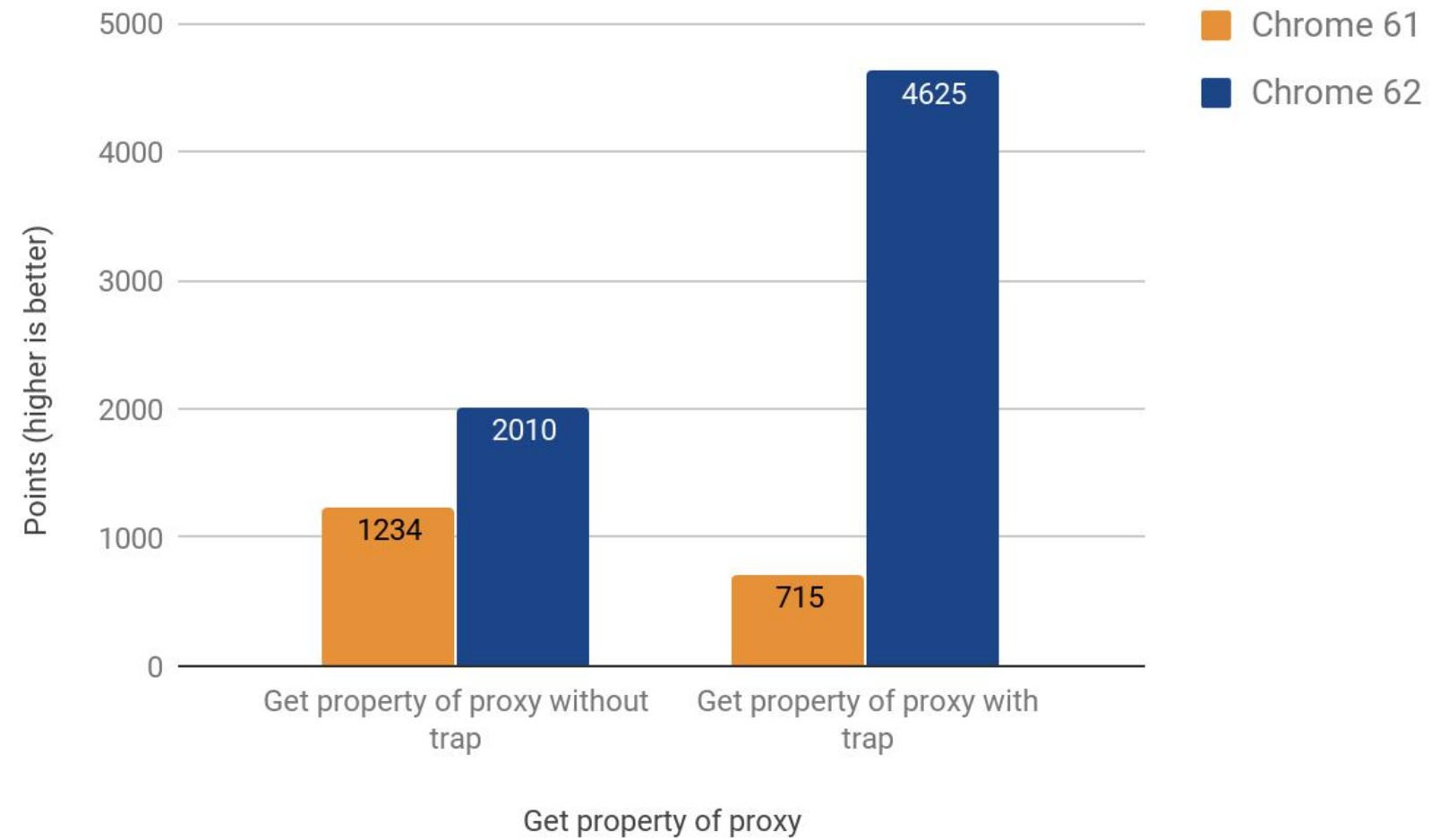
# Proxy

- Chrome 49 开始支持 Proxy
- Chrome 62 改进了 Proxy 的性能

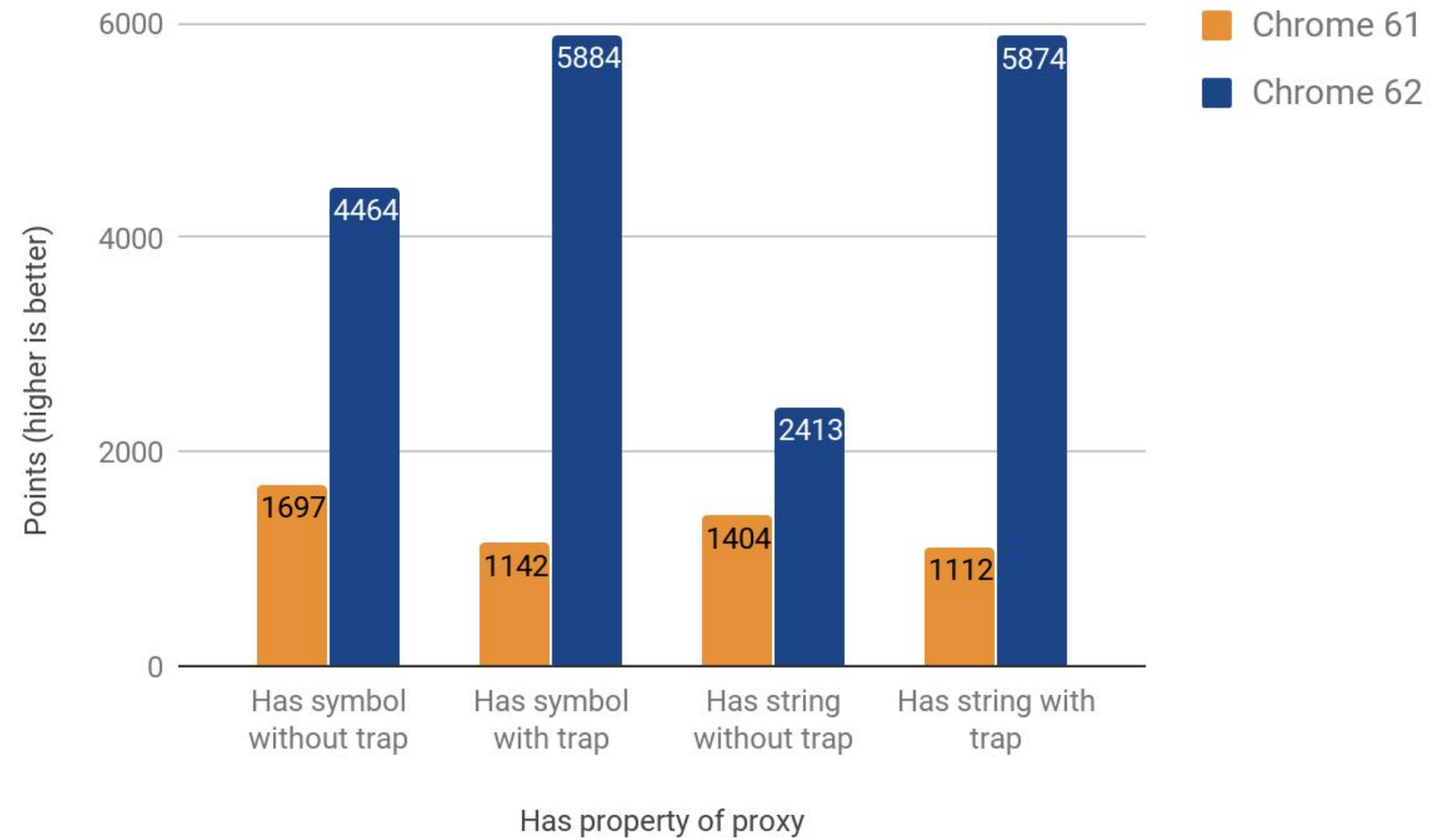
# Proxy Construct



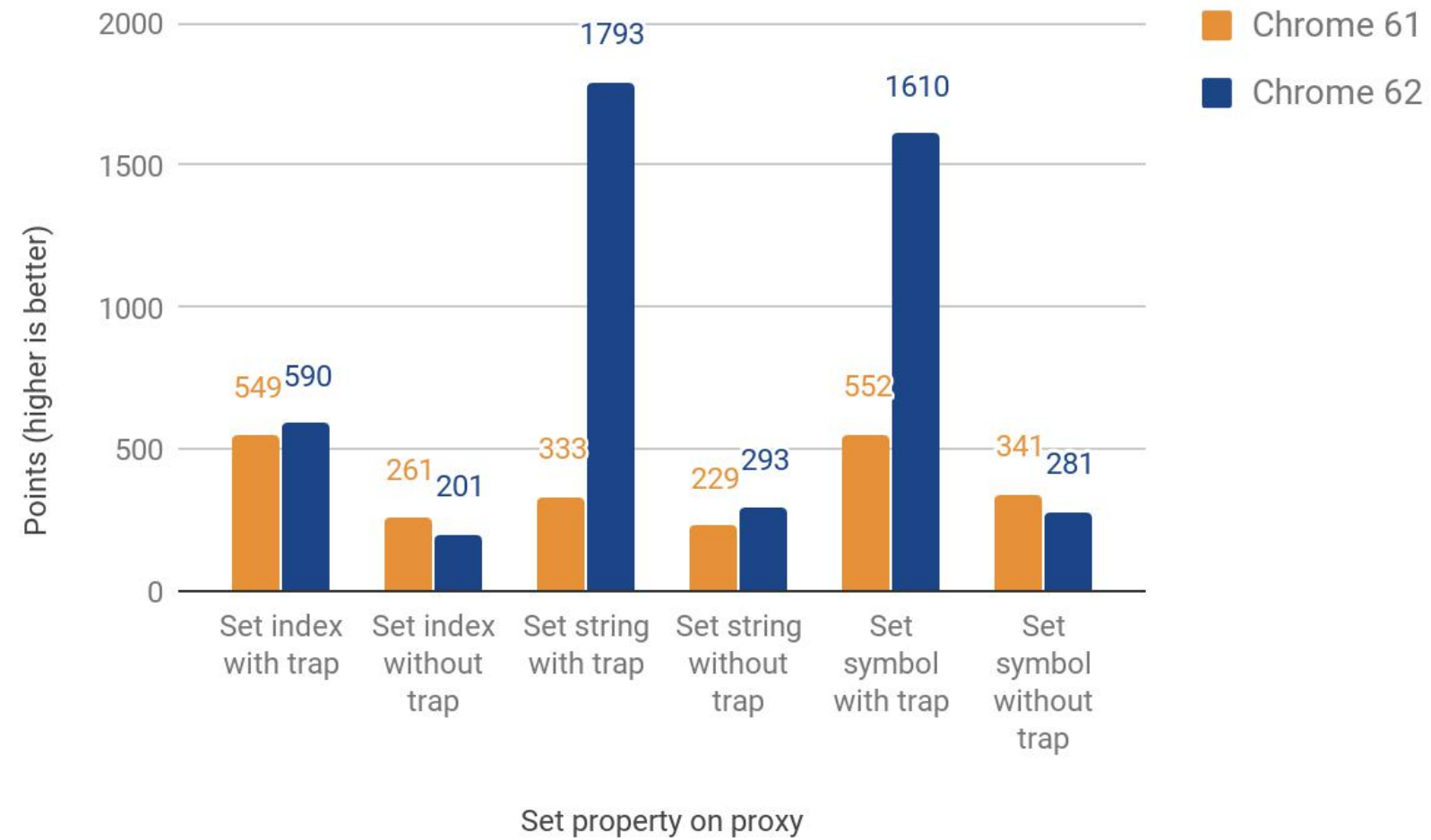
# Proxy Getter



# Proxy Has Property



# Proxy Setter





Proxy 性能提升

24% ~ 546%

# 前端工程化建设



# 什么是工程化？

工程化是将项目的开发流程、技术、工具、测试、部署等**规范化**和**标准化**





The image is a complex, colorful mind map drawn on a chalkboard background. The central node is the Chinese word "现状" (Current Situation), which is highlighted in a white box. The map branches out into various domains, each represented by different colors and icons:

- Top Left (Blue/White):** Includes a sun, a solar panel, and the word "Investment".
- Top Center (Red/Orange):** Features a hot air balloon, a rocket, and the word "Support".
- Top Right (Green/White):** Shows a lightbulb labeled "idea", a smartphone, and a "STOP" sign.
- Middle Left (Yellow/Orange):** Contains a database icon, a truck, and the word "Innovation".
- Middle Right (Green/White):** Includes a globe, a virus icon, and the word "Market".
- Bottom Left (Blue/White):** Features a wind turbine, clouds, and the word "Research".
- Bottom Center (Yellow/Orange):** Shows a bar chart, a cloud with "data" inside, and the formula  $x = a + b$ .
- Bottom Right (Green/White):** Includes a laptop, a palm tree, and the formula  $a = \sqrt{c + y} \times (x + b)^2$ .

The map is filled with numerous hand-drawn icons, arrows, and mathematical formulas, creating a dense and interconnected visual representation of various concepts.



# 现状

需求和目标存在差异  
效率和品质存在矛盾  
传统和创新存在冲突

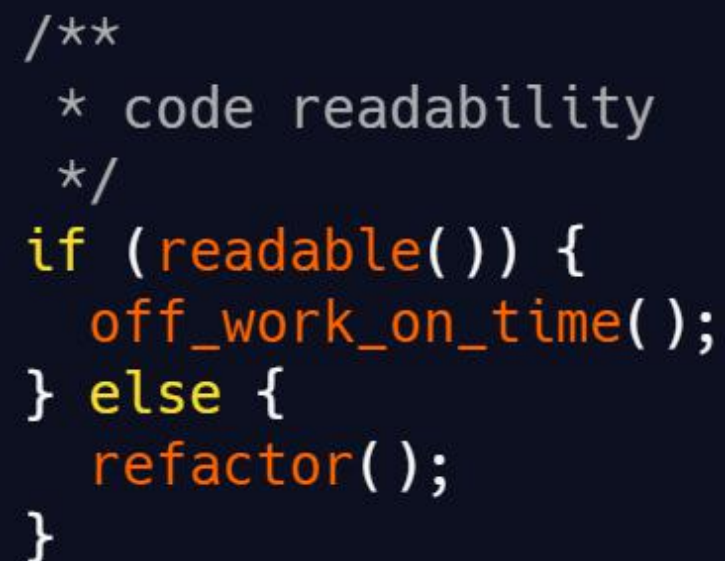


# 效率问题

可读性

可测试性

代码冗余/逻辑重复  
重构?



```
/**  
 * code readability  
 */  
if (readable()) {  
    off_work_on_time();  
} else {  
    refactor();  
}
```



# 质量问题

开发了新功能，老功能出现新的 bug

修复了一个 bug，结果又产生了其它 bug

已经定位了 bug，但是代码不是自己写的，不敢轻易动



# 协作/沟通问题

项目完成度/进度不明确

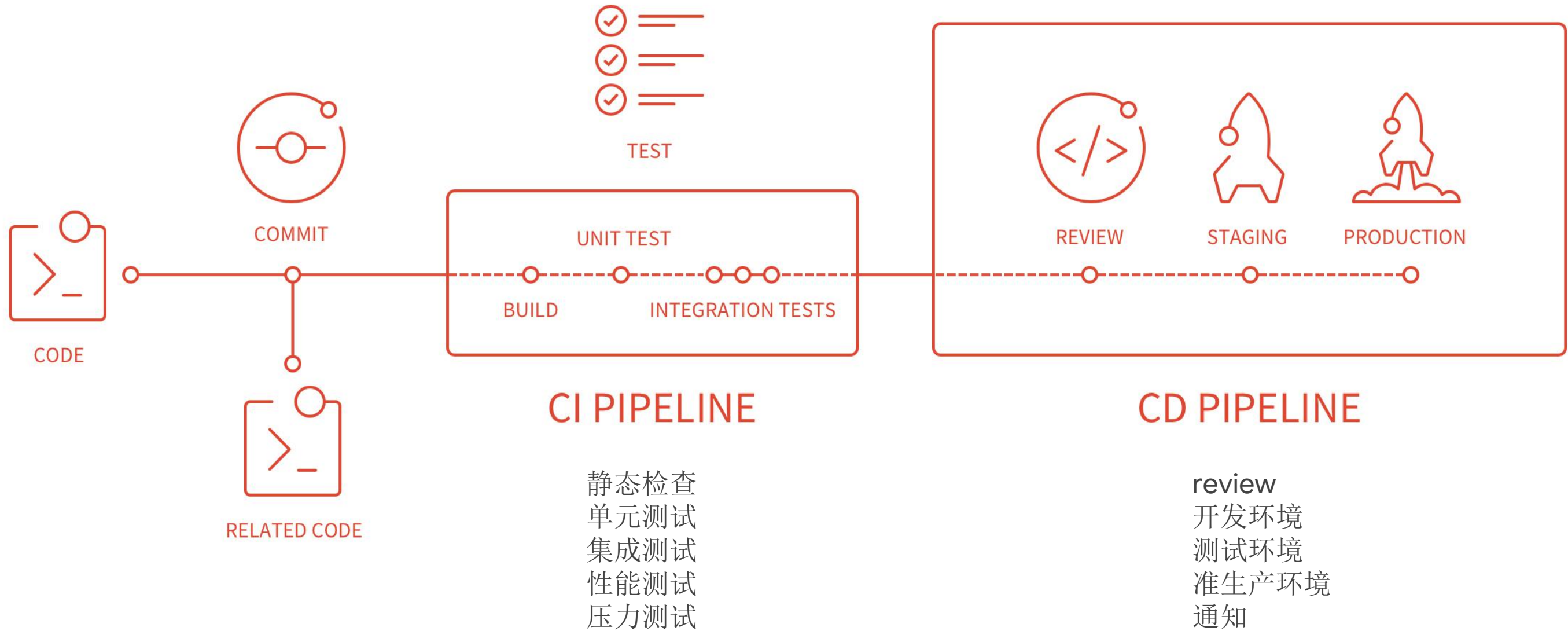
任务指派不明确

看板更新不及时(或没有项目看板)





























































# 正常的开发流程

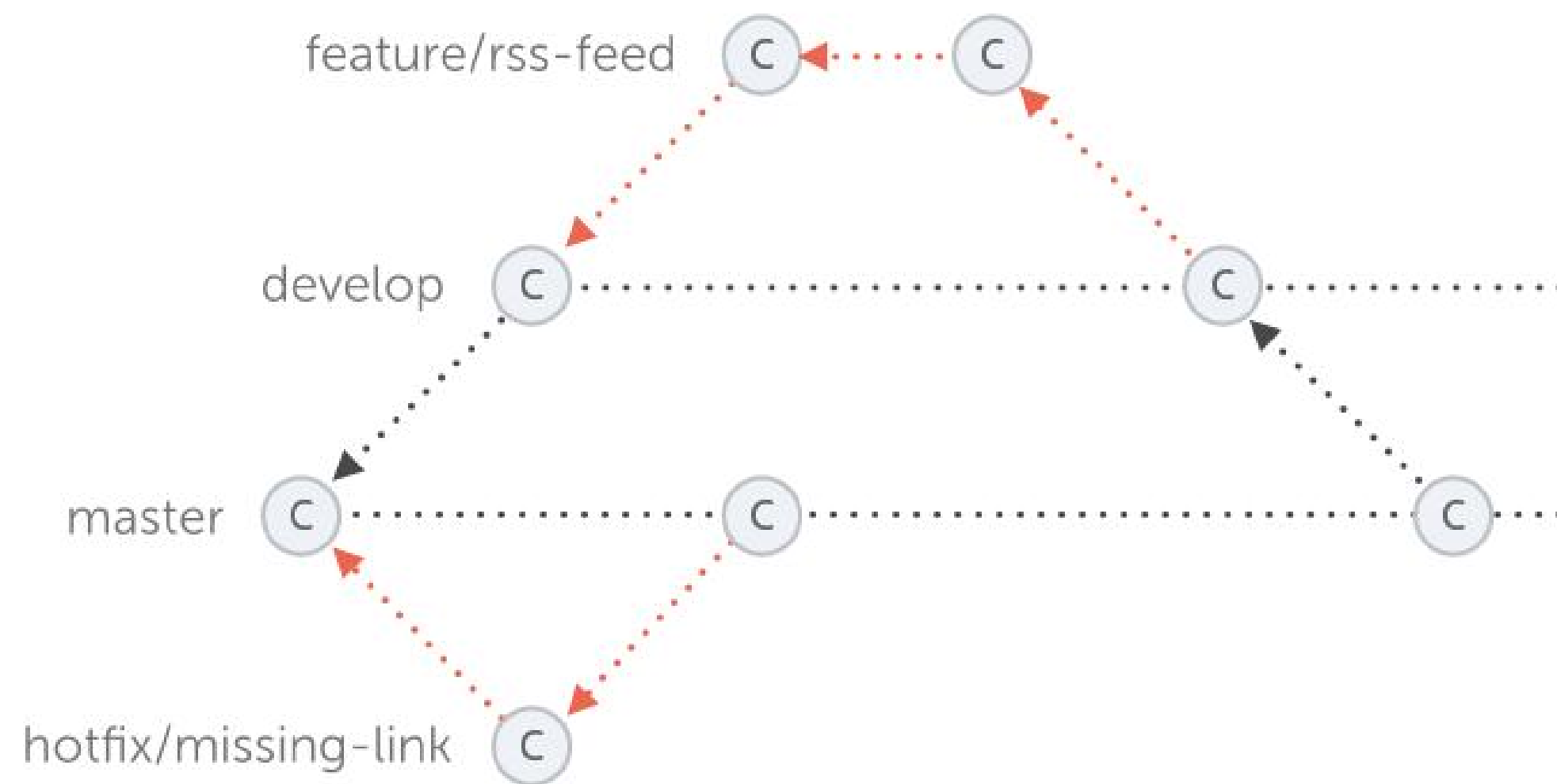




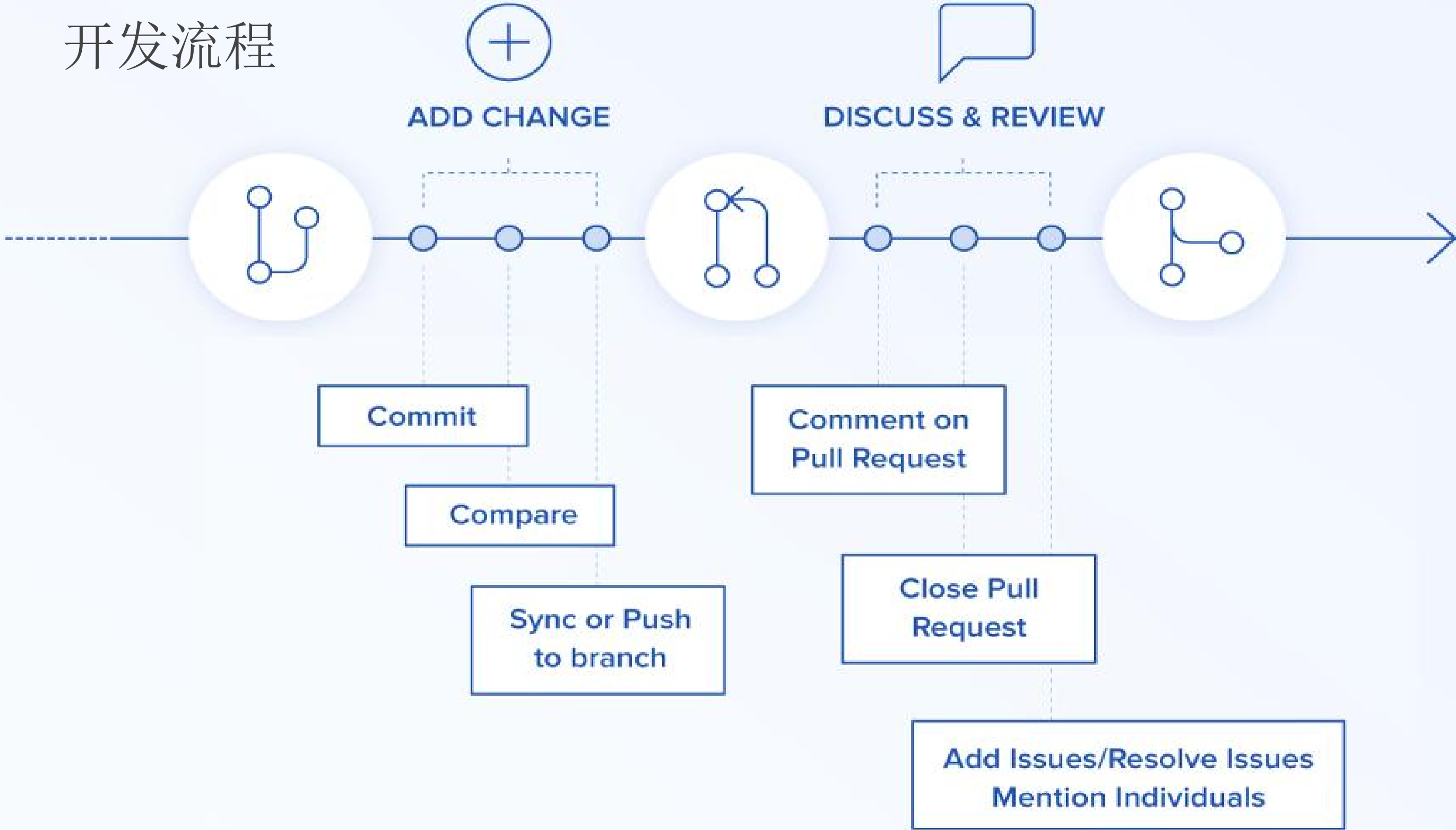
# 代码提交

| Status                                                                                     | Pipeline                                                                                                   | Commit                                                                                                                         | Stages                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  running  | #28569579 by <br>latest   | 🔗 master → 281dde53<br> 修复url中包含空格时的...       |     |                                                                                                                                                                                                  |
|  failed   | #28569562 by              | 🔗 master → e37a4e70<br> 解析 url 参数             |     |  00:02:18<br> just now<br> |
|  running  | #28569544 by              | 🔗 master → 53103aab<br> 添加断网重连功能              |     |                                                                                                                                                                                                  |
|  passed | #26829888 by <br>latest | 🔗 2-login → 6b7738e1<br> 合并登录分支             |                                                                                  |  00:03:15<br> 3 weeks ago                                                                                 |
|  passed | #26829582 by <br>latest | 🔗 f_password-ch... → 91894ac2<br> 修改密码时添加校验 |                                                                                  |  00:03:24<br> 3 weeks ago                                                                                 |
|  passed | #26829558 by            | 🔗 2-login → 91894ac2<br> 忽略代码覆盖率报告          |                                                                                  |  00:03:11<br> 3 weeks ago                                                                                 |
|  passed | #26829525 by <br>latest | 🔗 2_login → 91894ac2<br> 初始化登录页面            |                                                                                  |  00:03:06<br> 3 weeks ago                                                                                 |

# 分支管理

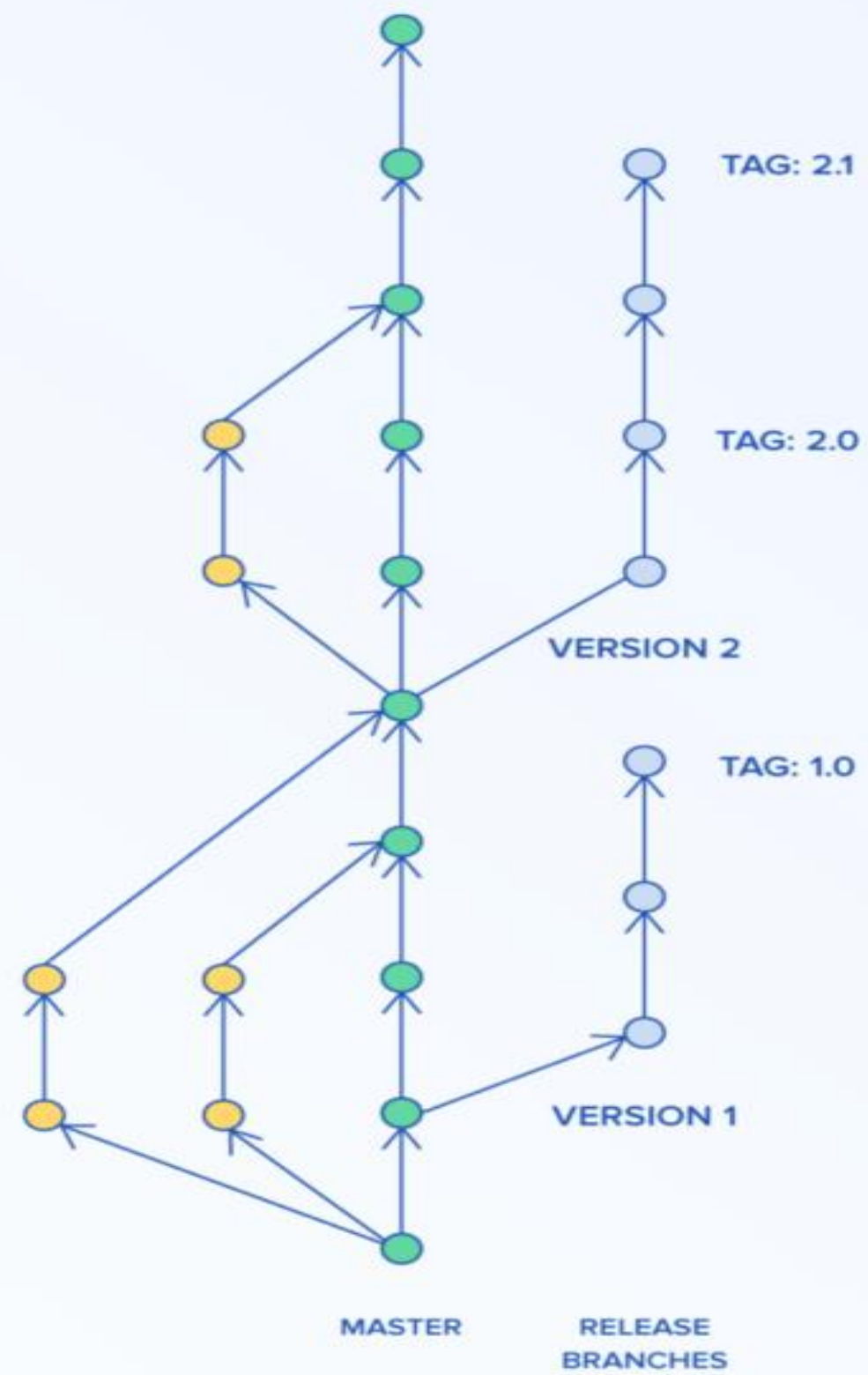


# 开发流程



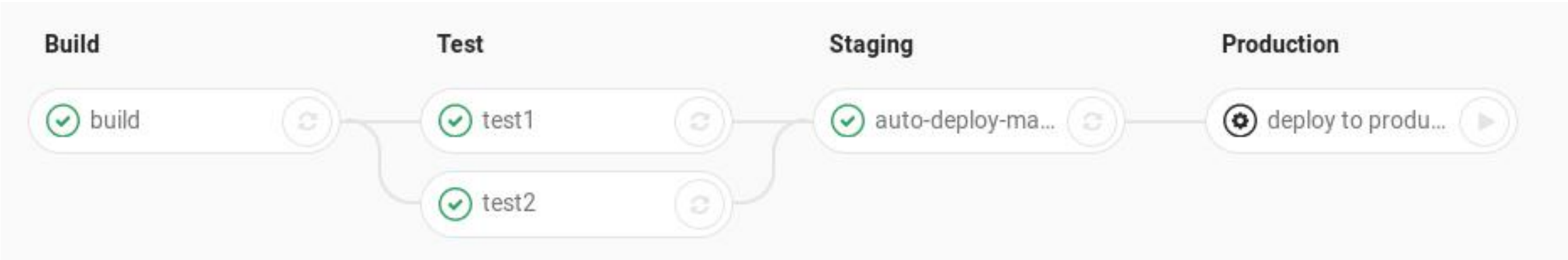


# 发布流程



# CI/CD

|              |                     |                                                        |           |            |          | <a href="#">Run Pipeline</a> <a href="#">CI Lint</a> |  |
|--------------|---------------------|--------------------------------------------------------|-----------|------------|----------|------------------------------------------------------|--|
| <b>All</b> 2 |                     | Pending 0                                              | Running 0 | Finished 2 | Branches | Tags                                                 |  |
| Status       | Pipeline            | Commit                                                 |           | Stages     |          |                                                      |  |
|              | #7927123 by  latest | 🔗 pipeline-graph 🔗 d4de4a5c<br>🔗 Update .gitlab-ci.yml |           |            |          | 🕒 00:00:55<br>📅 1 hour ago                           |  |
|              | #7562143 by  latest | 🔗 master 🔗 4a2f619e<br>🔗 Update .gitlab-ci.yml         |           |            |          | 🕒 00:00:57<br>📅 2 weeks ago                          |  |



GitLab

TEST ➡

DEPLOY ➡



422cbad6

d9f8e0aa

4f52ed2a

22ac4de

c6d045cf

722ac4de

ce81642a

# .gitlab-ci.yml

✓ passed Pipeline #183 triggered 5 hours ago by justjavac

## Update ci branch for test

🕒 5 jobs from master in 6 minutes and 52 seconds

🔑 89effcac ... 🔗

Pipeline Jobs 5

Prebuild

✓ lint

Test

✓ test

Build

✓ build

✓ build css

✓ build images

```
lint:
  stage: prebuild
  script:
    - yarn lint

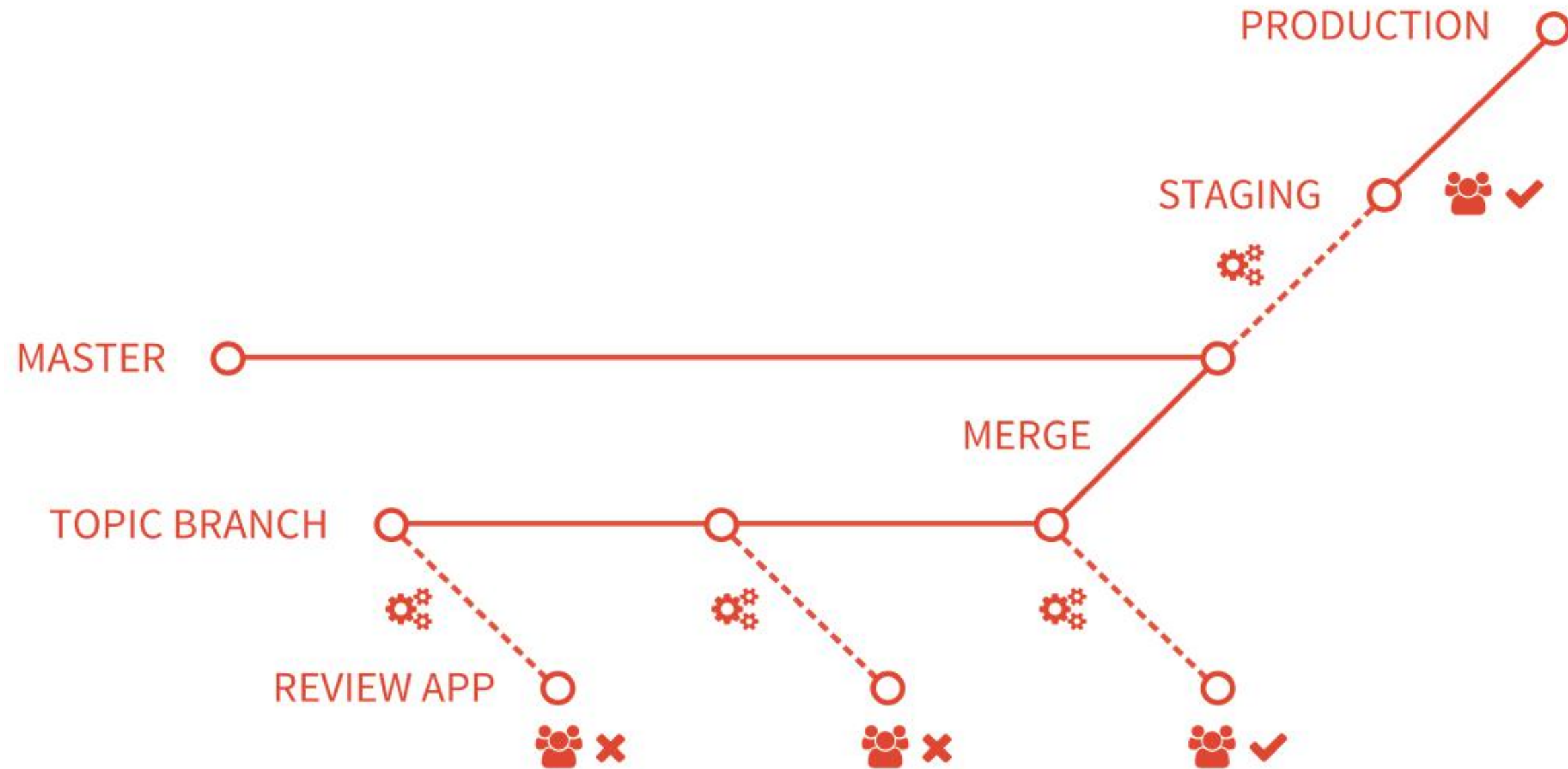
test:
  stage: test
  script:
    - echo 'test'
    - yarn cross-env JEST_JUNIT_OUTPUT=./report.xml jest --coverage --ci --re
  coverage: /All files\[^\]*\[^\]*\s+([\d\.]+)/
  artifacts:
    reports:
      junit: report.xml

build css:
  stage: build
  script:
    - echo 'build css'
    - exit 0

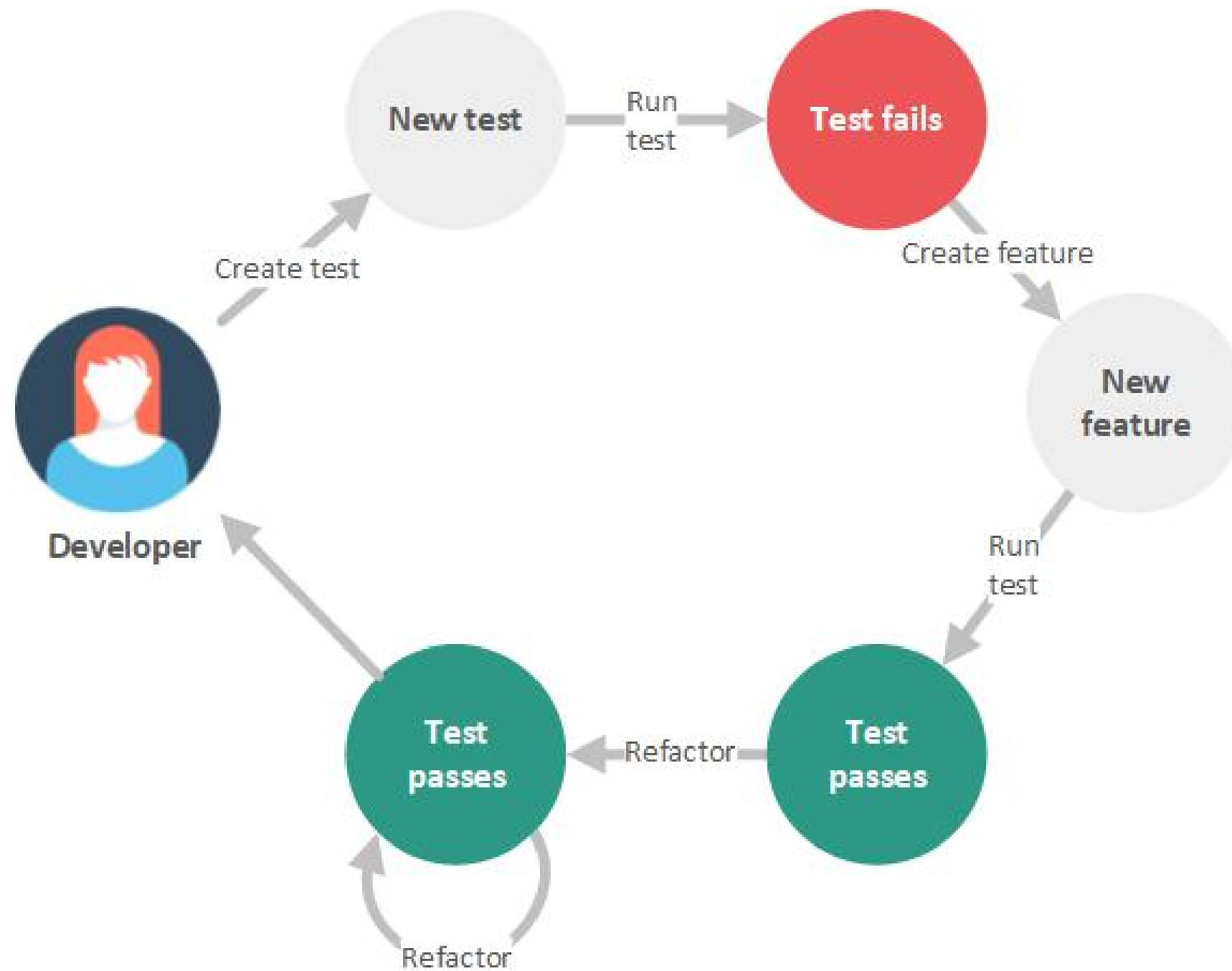
build images:
  stage: build
  script:
    - echo 'build images'
    - exit 0

build:
  stage: build
  script:
    - yarn build
```

# Code Review



# Refactor







举一个栗子

```
if (user.flag & 0xF7 !== 0) {  
    price *= 0.8;  
}
```

```
if (user.isVip()) {  
    price *= 0.8;  
}
```

```
function isVip() {  
    return this.flag & 0xF7 !== 0;  
}
```



# DevFest

## Q&A



迷渡 (justjavac)

<https://github.com/justjavac>

