

50 Shades of PR

Understanding and Overcoming PR Blockers



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Engineering Team Leader
LinearB

📍 From **Tel Aviv**



Vishi (Avishag Sahar)

Allscripts | 2015

Cisco | 2018

LinearB | 2021

Computer Science 🖥️

- Ben-Gurion University B.Sc

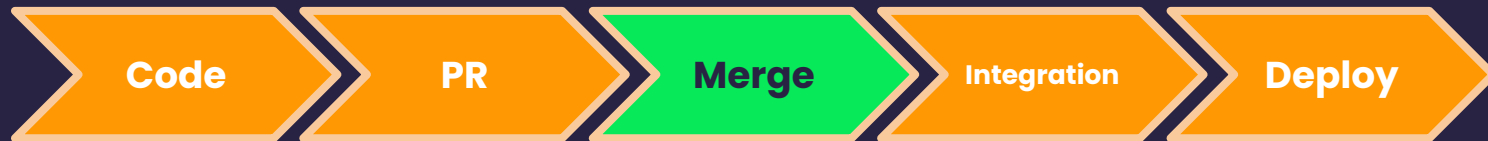
The Common Delivery Cycle



The Common Delivery Cycle



The Common Delivery Cycle



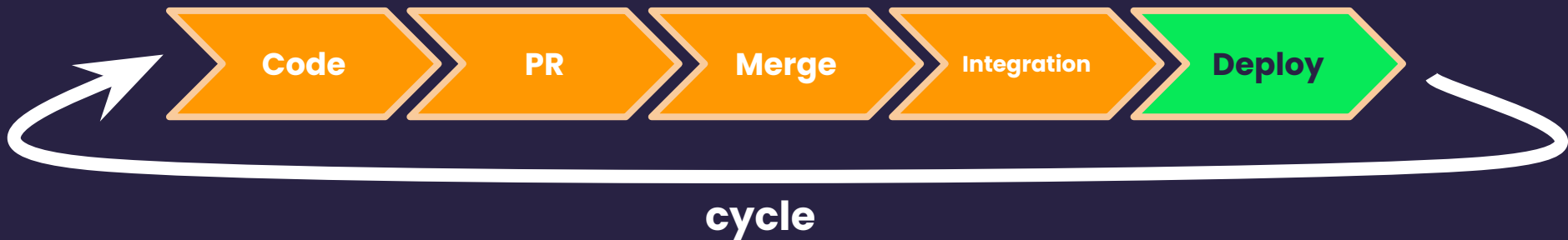
The Common Delivery Cycle



The Common Delivery Cycle



The Common Delivery Cycle

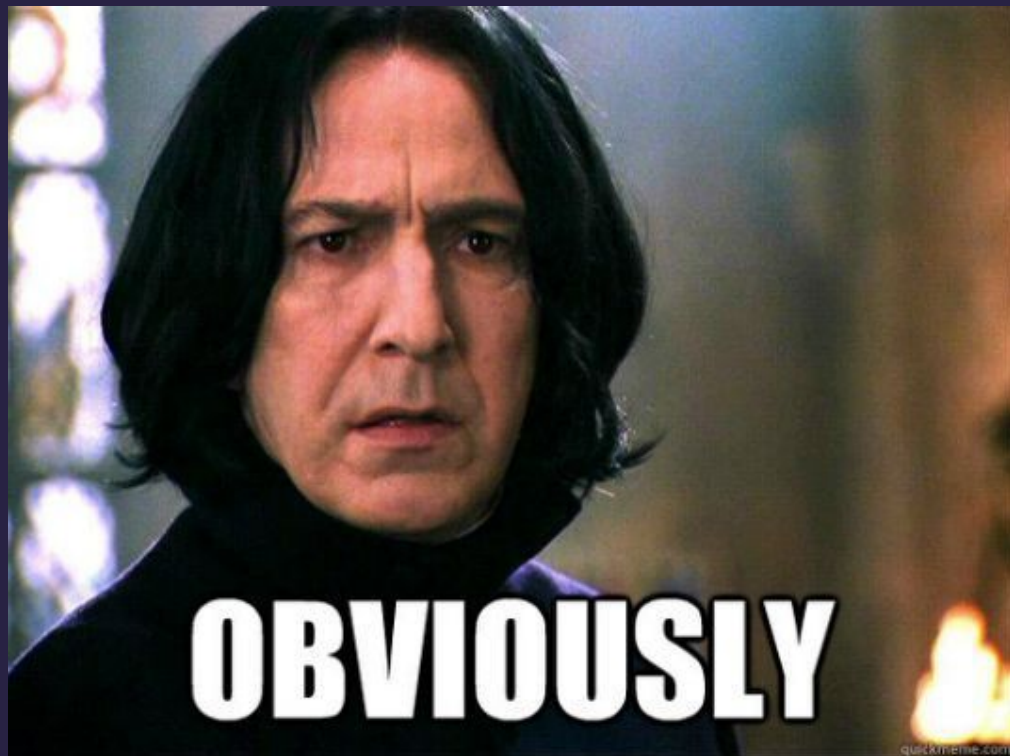




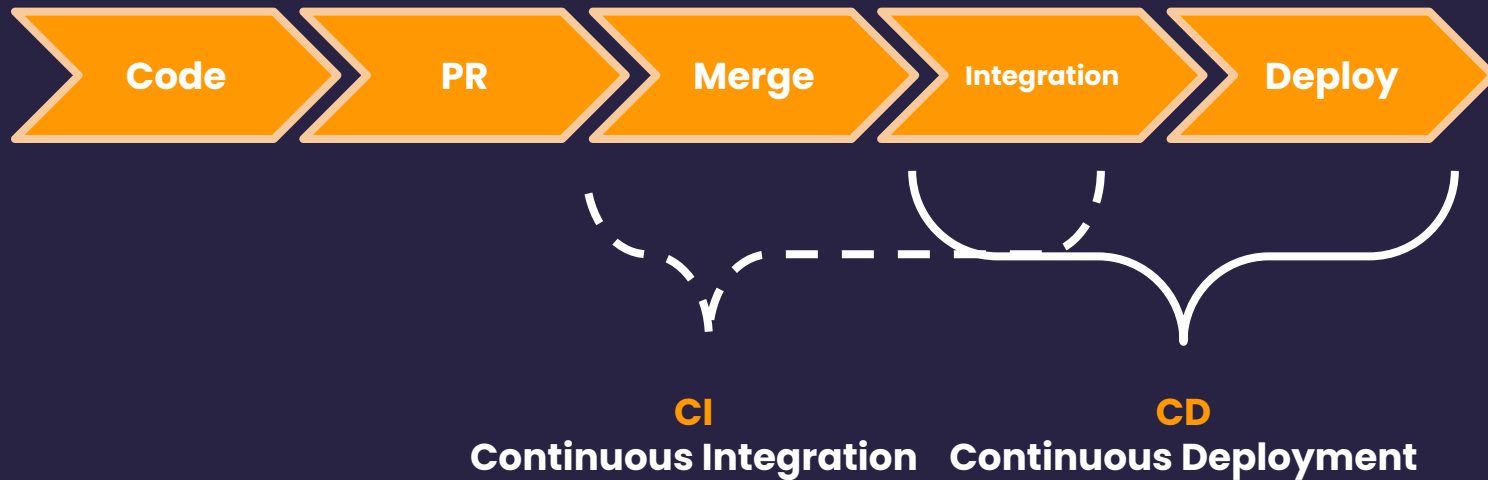
How Can We Speed Up The Cycle?



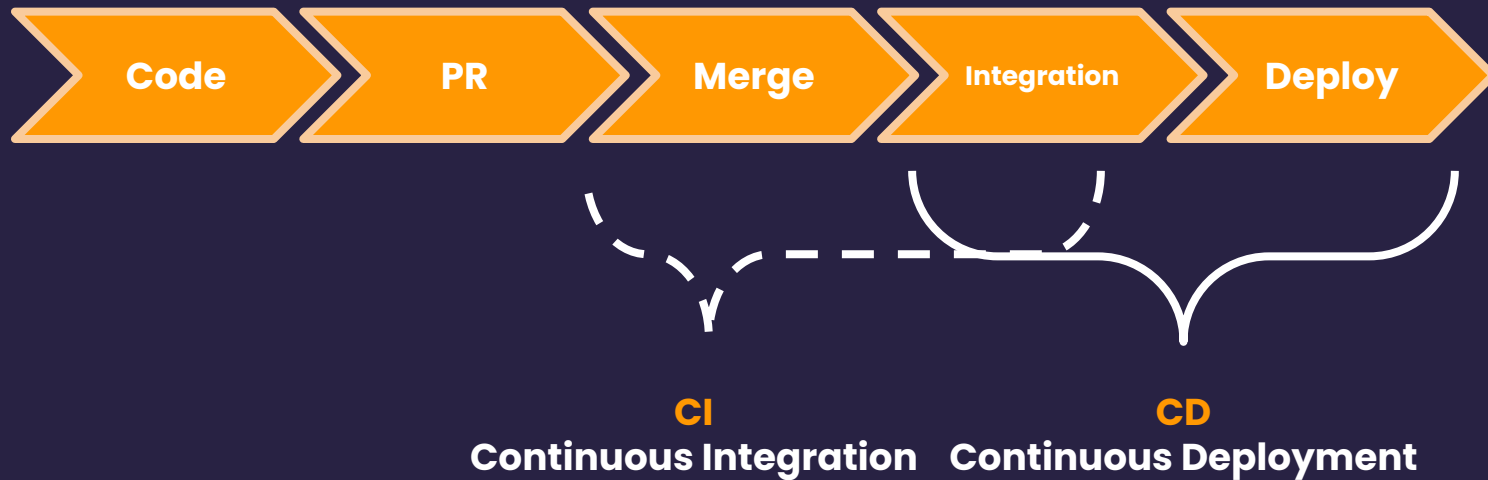
Reduce Blockers



CI / CD approach



CI / CD approach



Fact: CI/CD tools added major boost to the speed! 🕒

Automation approach



CI



CD

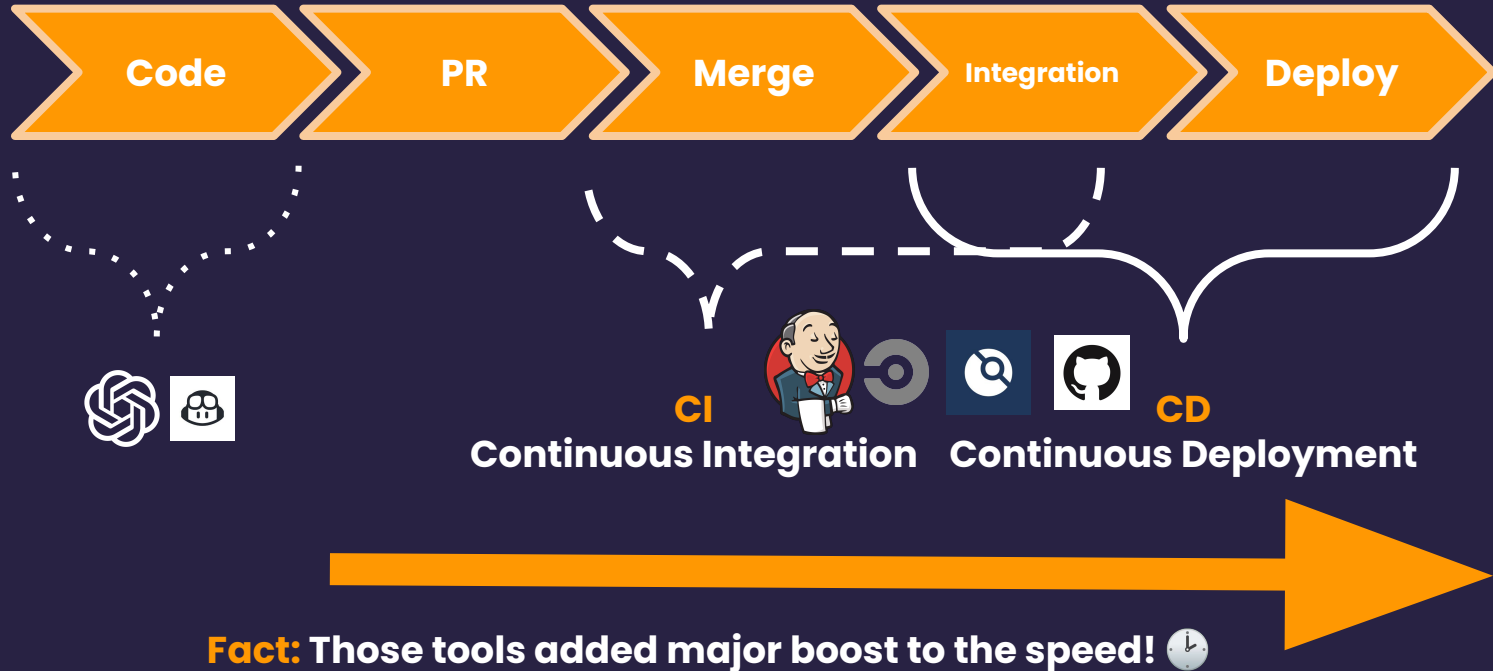
Continuous Integration

Continuous Deployment



Fact: Those tools added major boost to the speed! 🕒

Automation approach



Automated approach



CI / CD Approach



Fact: CI/CD tools added major boost to the speed! 🕒



Can we boost it even **more**?



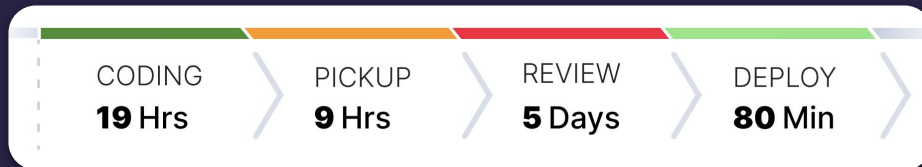
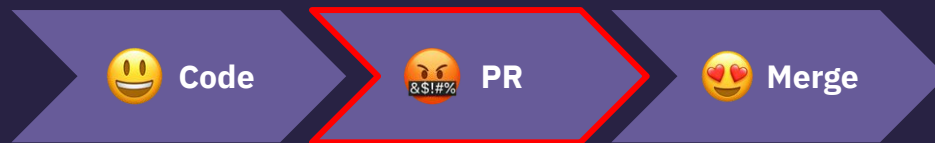
LinearB Labs Pull Request Research

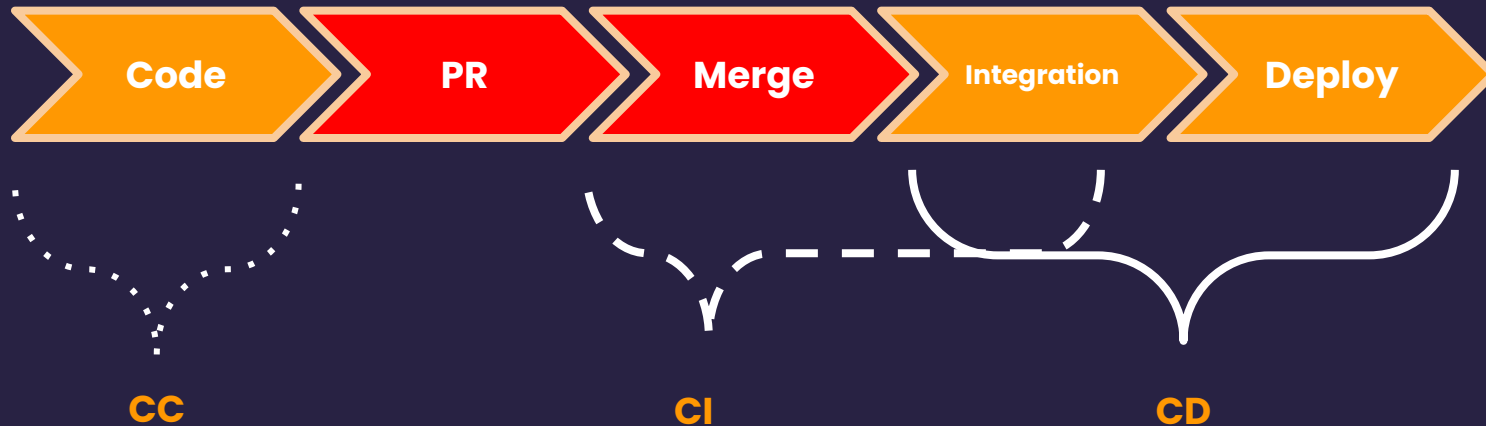
~1 Million
Pull Requests

3.9M
Reviews

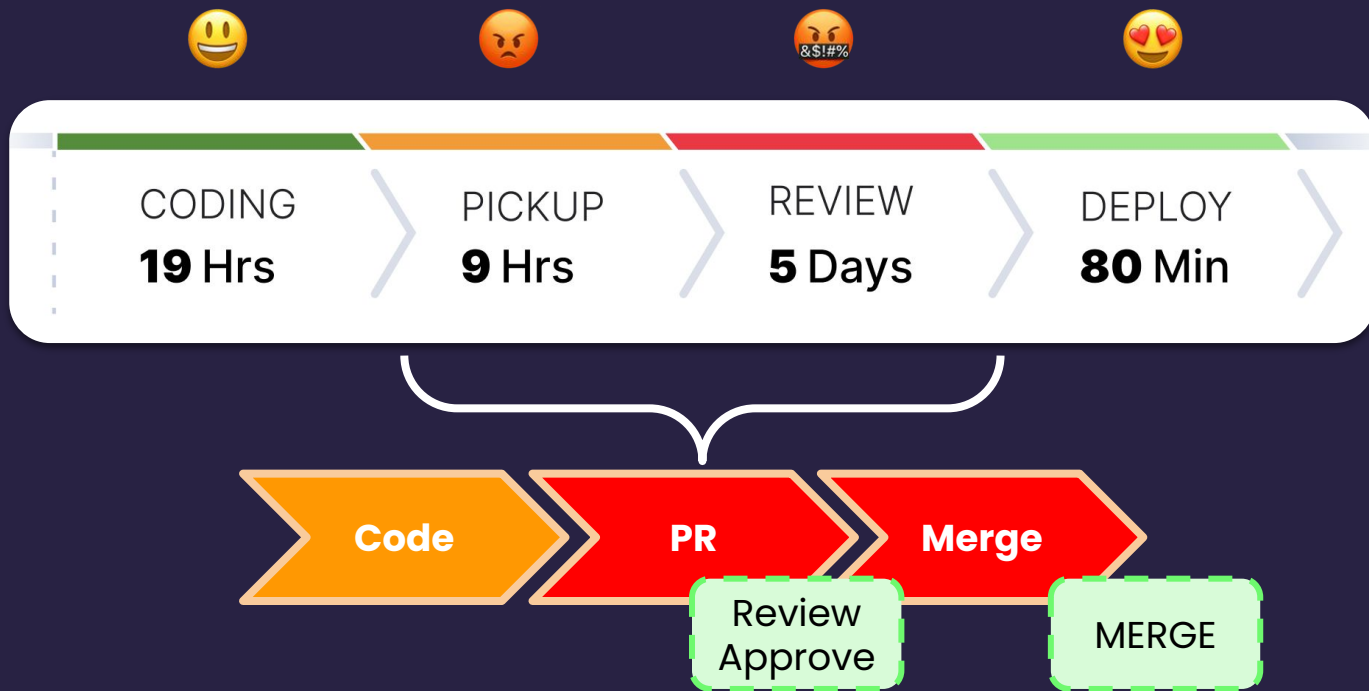
25.6K
Developers

Code is getting stuck here:





Idle Time



What affects your **PR** time?



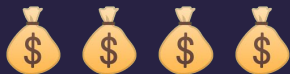
Reviewer's POV



Overwhelming effect ☐



Context Switch



Review process 😬

What affects your PR?

Developer's POV



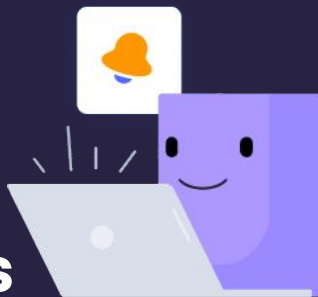
Task Scope



Dependencies



Refactor & Feature mix



Reviewer's POV



Context Switch 



Overwhelming effect



PR context

What affects your PR?

Developer's POV



Tech Design



Task Scope



Refactor & Feature mix



Reviewer's POV



Context Switch



Overwhelming effect



PR context



Feature

Refactor

Experimental

Hotfix

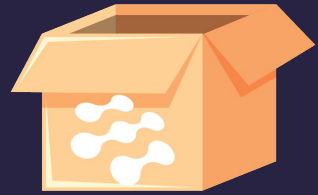
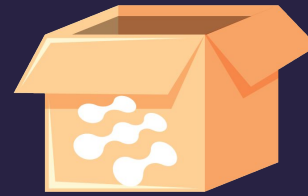
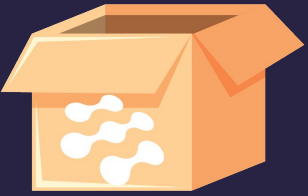
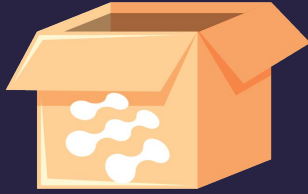
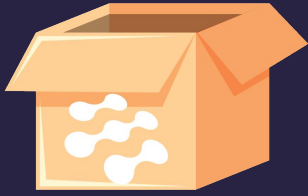
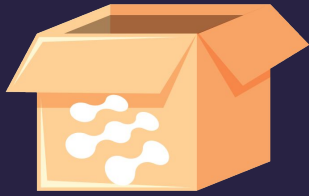
Test

Docs

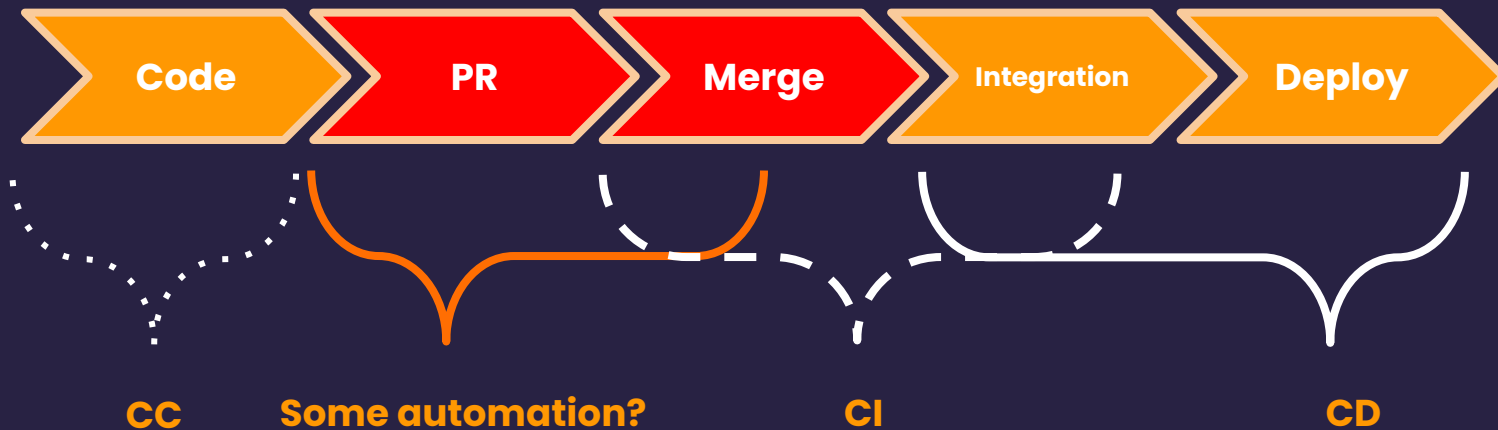
Release

Bug Fix

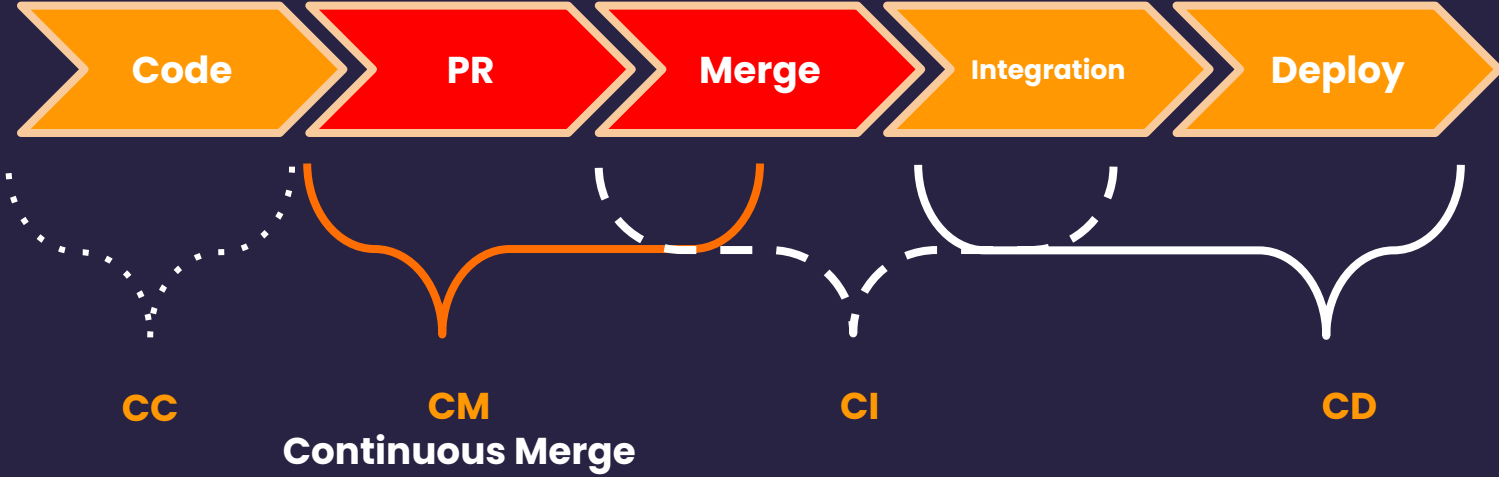
Dependency



Automation approach



CM approach



CM approach

Continuous Merge

Refers to the pull request and how to **boost merges** in automated way.

Every PR is automatically given a **unique merge route**.



Old Way - All PRs the same no matter what



Continuous Merge Way

Low risk - Auto Merge! No Review!

Medium Risk - 1 Review - TTL

High Risk! - 2 or more reviewers

Automated PR merge & categorization



Add PR Context:

PR owner, PR name,
of comments, comment
author, etc



Dynamic Restrictions:

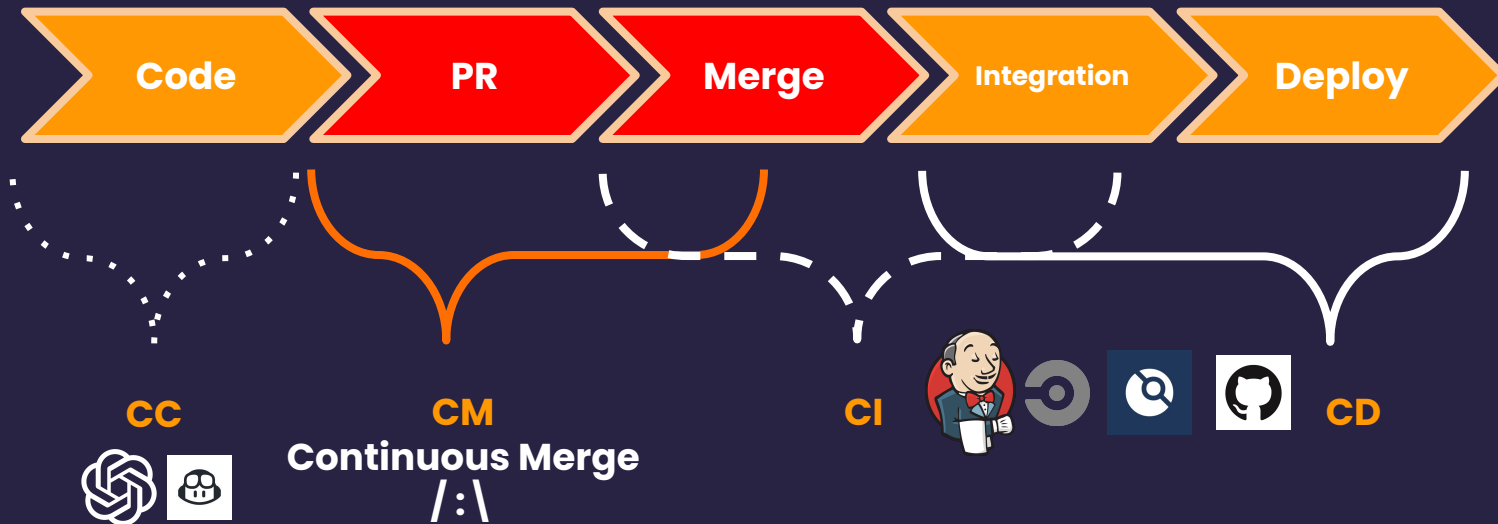
Apply different
restrictions on PR based
on analysing it.



Dynamic Code Owners:

Find the best reviewer
based on PR code change

You can start today :)



i /:\ You reduced cycle time by 3 days and auto-assigned 144 reviewers in 7 days. Impressive! **x**

gitstream / .cm / gitstream.cm

Code

Blame

64 lines (54 loc) · 1.7 KB

```
9
10   automations:
11     # Approve changes of text files inside docs dir by maintainers
12     # Merging is still manual
13     approve_maintainers_docs:
14       if:
15         - {{ files | match(regex=r/docs\/.*\.(md|txt|png|svg|webp)$/) | every }}
16         - {{ has.img_type1 or has.img_type2 or has.img_type3 }}
17         - {{ pr.author | match(list=maintainers) }}
18       run:
19         - action: approve@v1
20
21     # Notify maintainers on new PRs
22     notify_maintainers:
23       if:
24         - true
25       run:
26         - action: add-reviewers@v1
27         args:
28           reviewers: {{ maintainers }}
```


```
39
40 # Mark missing screenshot when touching docs dir texts
41 mark_screenshot:
42   if:
43     - {{ files | match(regex=r/docs\/.*\.(md|txt)$/) | some }}
44     - {{ not (has.img_type1 or has.img_type2 or has.img_type3) }}
45   run:
46     - action: add-label@v1
47       args:
48         label: 'no screenshot'
49         color: '#FF000A'
50     - action: add-comment@v1
51       args:
52         comment: |
53           A screenshot of the relevant part of docs after the changes is a life saver 🙏
54
55
56   has:
57     img_type1: {{ pr.description | includes(regex=r/!\[.*\]\(.*(jpg|svg|png|gif|psd).*\)/) }}
58     img_type2: {{ pr.description | includes(regex=r/!\[.*\]\((https?:\/\/github.com\/.*\/)\) }}
59     img_type3: {{ pr.description | includes(regex=r/<img.*src=.*https:\/\/github.com.*>/) }}
60
```

linweb / .cm / gitstream.cm

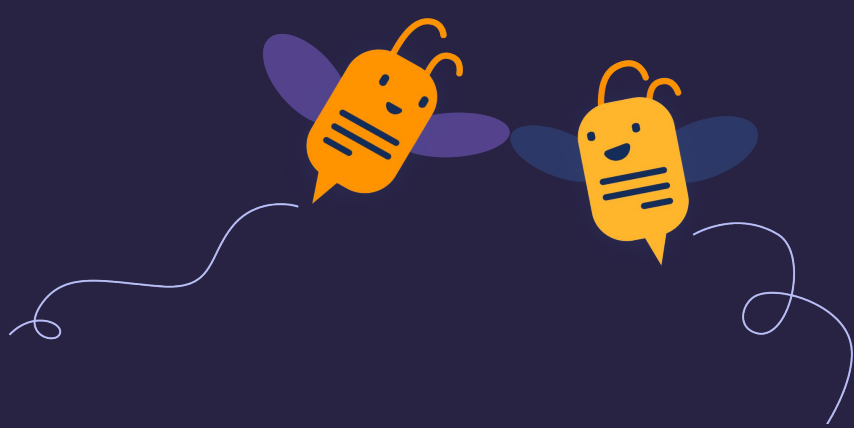
Code

Blame

105 lines (94 loc) · 3.08 KB

 Your organization can pay for GitHub Copilot

```
20
21   automations:
22     safe_changes:
23       if:
24         - {{ is.formatting or is.docs or is.tests or is.images }}
25       run:
26         - action: add-labels@v1
27           args:
28             labels: ['safe-changes']
29         - action: approve@v1
30
```



Questions?
DM
vishi@linearb.io