



# Completing the promise of CI/CD with Continuous Merge

**Dan Lines**  
Founder, LinearB

**Truong-An Thai**  
VP Eng, FloSports

# Let's talk Continuous Merge

**Problem Discovery  
Analysis & Experiments  
Implementation & Results**



**Truong-An Thai**

VP of Engineering | FloSports



**Dan Lines**

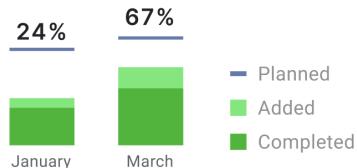
Co-Founder & COO | LinearB  
Founder | Dev Interrupted

# Engineering Metrics

## Business Alignment

### Leadership

#### PLANNING ACCURACY



## Engineering Efficiency

### Teams

#### Cycle Time Breakdown

**3 days 8 hours** avg cycle time



## Developer Experience

### Developers

#### Merge Frequency ⓘ

**12.9** PRs per week

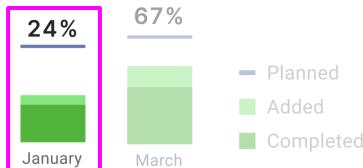


# Exposing Bottlenecks

## Business Alignment

### Leadership

#### PLANNING ACCURACY



## Engineering Efficiency

### Teams

#### Cycle Time Breakdown

3 days 8 hours avg cycle time



## Developer Experience

### Developers

#### Merge Frequency ⓘ

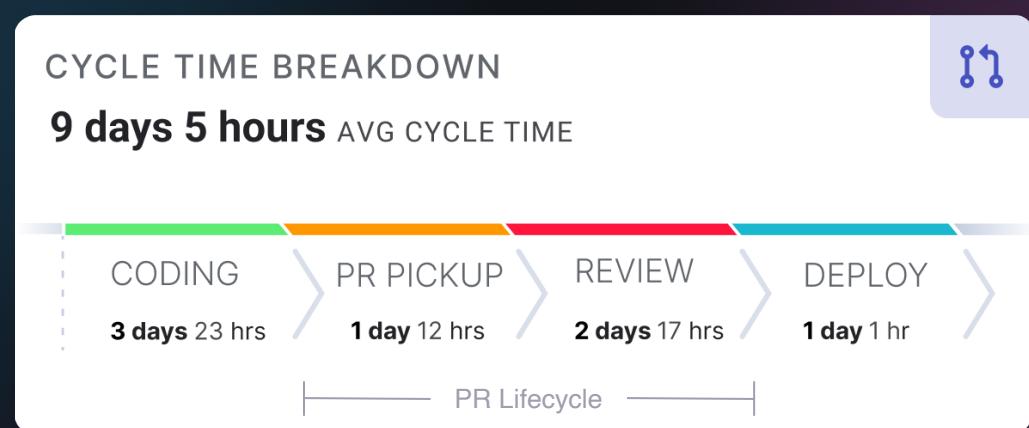
12.9 PRs per week



# FloSports Bottleneck

**9 Days 5 Hours - Cycle Time**

- **Coding:** 3 days 23 hour
- **PR Pickup Time:** 1 day 12 hour
- **PR Review Time:** 2 days 17 hours
- **Deploy Time:** 1 day 1 hour



LinearB Labs

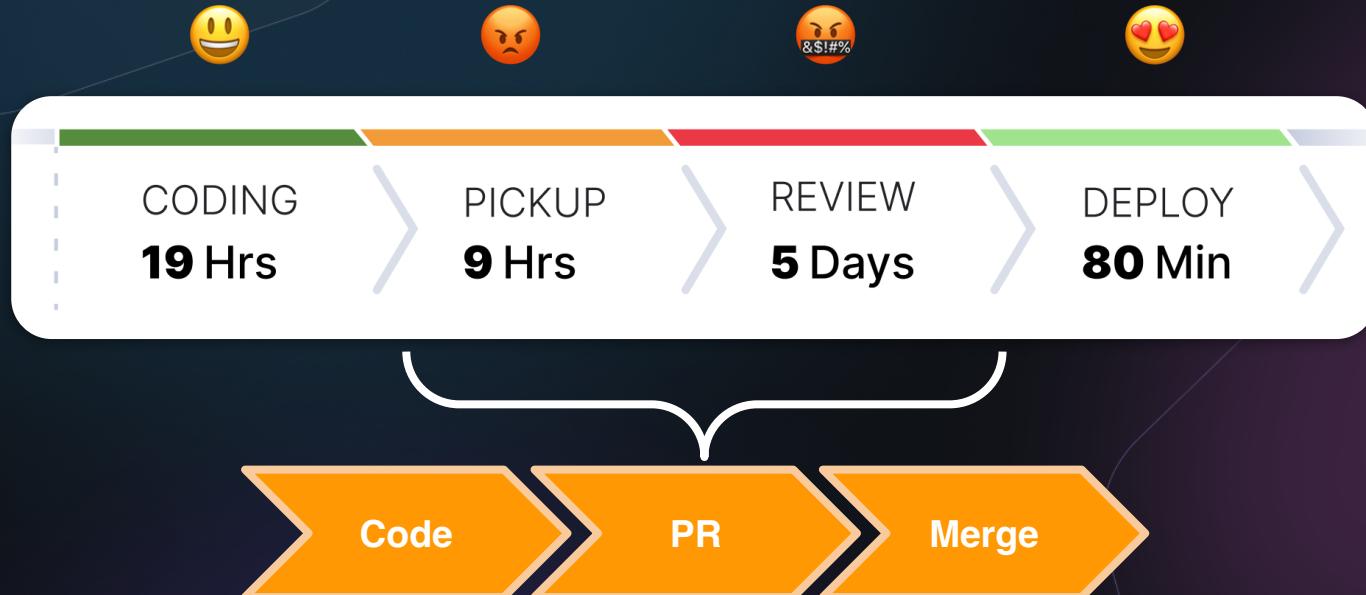
# Pull Request Research

**~1 Million**  
Pull Requests

**3.9M**  
Reviews

**25.6K**  
Developers

# Code is getting stuck here



# Pull Requests are mostly idle



**50%** of PRs are idle  
**50.4%** of lifespan



**33%** of PRs are idle  
**77.8%** of lifespan

No Movement == No Merging

# Breaking down the PR problem

## Awareness



We don't have awareness when a PR is moving through phases

## Context



We don't have context about the PR to make the best decisions

## Automation



Each PR is Unique but being handheld exactly the same

# Awareness & Context with WorkerB

Lucy Lu

Messages About

WorkerB APP 9:06 AM

Hey @Lucy Lu

Angela Brown requested your review for this pull request:  
connectors/Initiate script for multiple languages

Est. review time: 63 minutes

Related Issue: FLO-2178 - Admin can self configure projects

WorkerB APP 8:37PM

Approve now with 1-click:  
linen/daily metrics sources deletion

changes/changes.yml [CHANGED]

1	- api-gateway: v0.33.20
2	+ lists: v0.22.28
3	+ pm-connectors: v0.18.48

Jennifer wants to merge 1 commit [pr-merge-test](#) → [pr-merge-test-base](#)

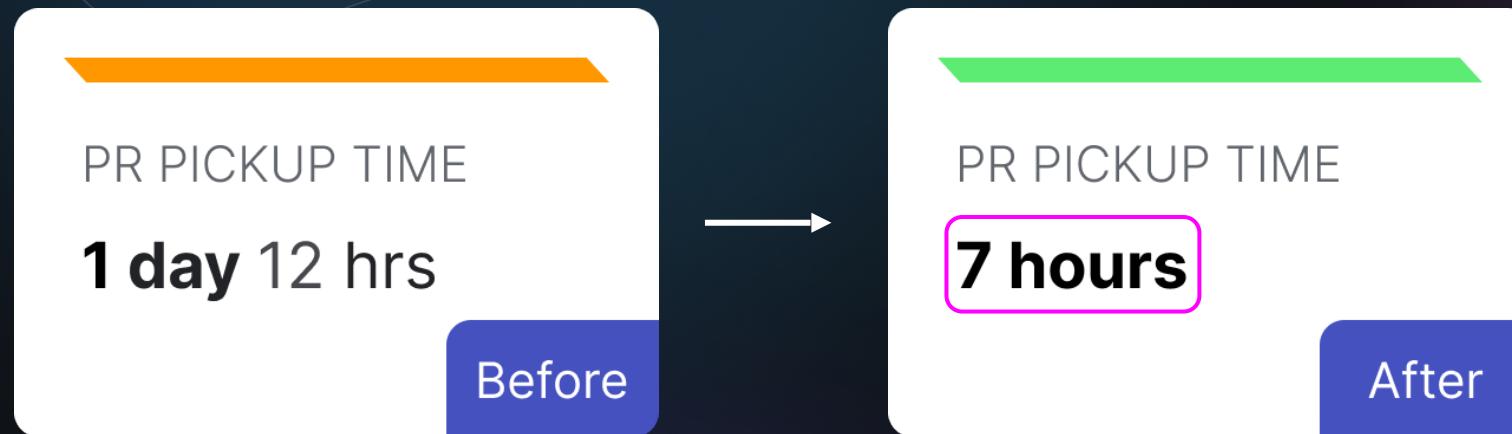
Files: 1 | Lines: 3 | Check: running | Base branch: no conflicts

Leave a comment

Write something

Approve

# Awareness & Context Results



# Review Automation with gitStream

Every pull request is treated the same



## Continuous Merge with gitStream:

- Small changes - Auto-approve!
- Common Change - Find the right reviewer
- Critical change - requires 2 or more reviewers

# Review Automation with gitStream

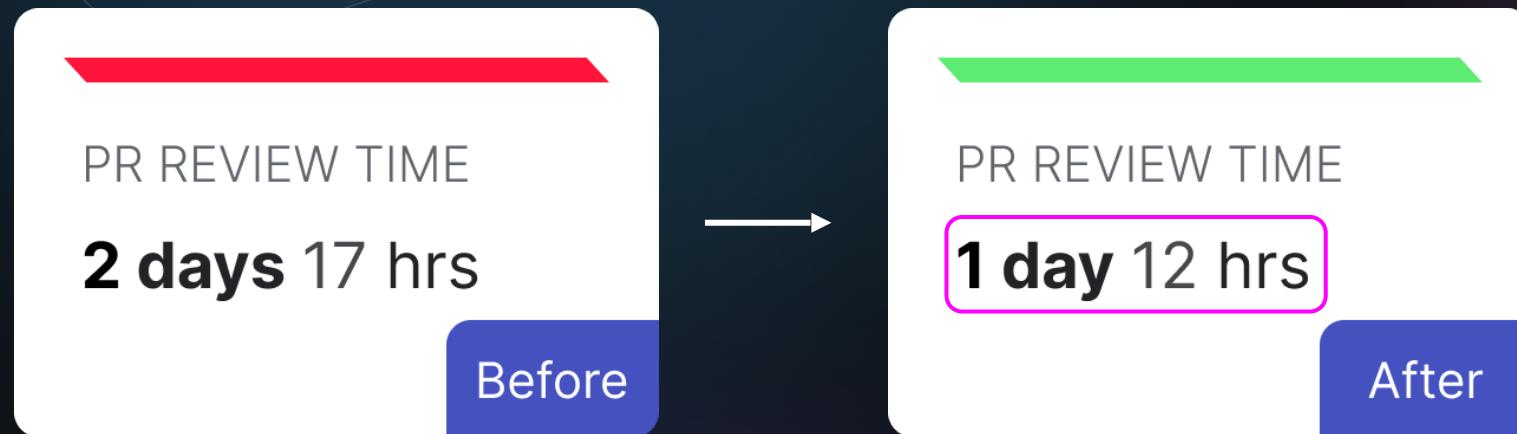
## gitStream Use Cases

1. Approve + merge
  - a. bot config changes
1. Approve
  - a. Typescript files
  - b. Formatting
  - c. Tests only
  - d. (ci pass)
1. Auto Request changes
  - a. API depreciation
1. Skip long running tests if:
  - a. X
  - b. Y
  - c. Z

## FloSports Implementation

1. Approve + merge
  - a. bot config changes
1. Approve
  - a. Typescript files
  - b. Formatting
  - c. Tests only
  - d. (ci pass)
1. Auto Request changes
  - a. API depreciation
1. Skip long running tests if:
  - a. X
  - b. Y
  - c. Z

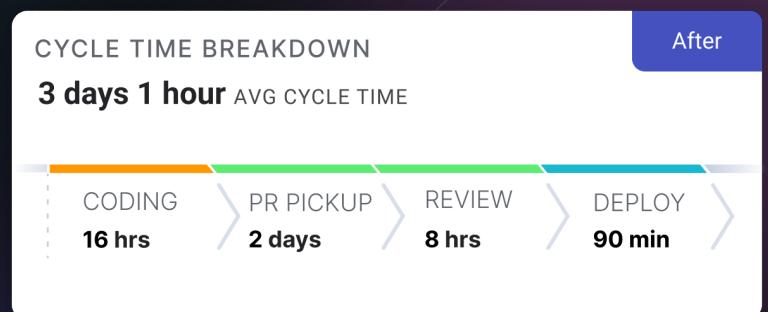
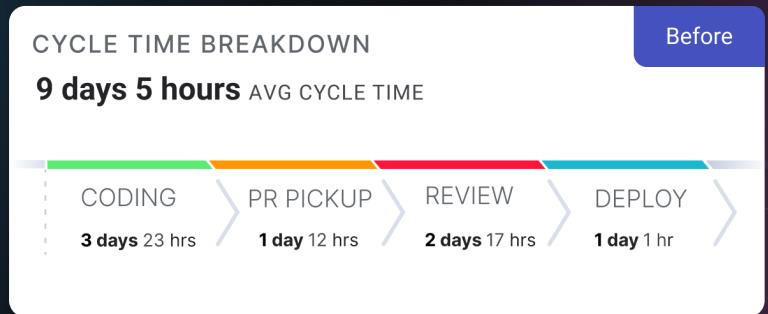
# Awareness & Context Results



# FloSports Results Slide

## 5 Days 12 Hours - Cycle Time

- **Coding:** 2 days 21 hours
- **PR Pickup Time:** 7 hours
- **PR Review Time:** 1 day 12 hours
- **Deploy Time:** 20 hours



# Completing the CI/CD Promise

Awareness



Context



Automation



## What is continuous Merge (CM)?

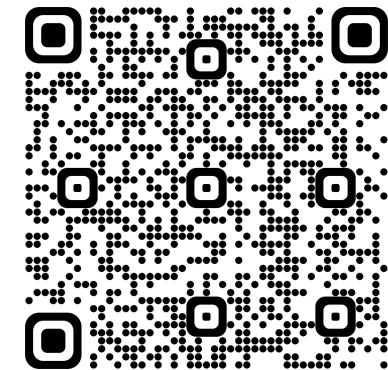
Continuous Merge (CM) is the practice of improving merge efficiency by classifying pull requests based on change size and complexity. Automating the merge path based on the unique merge conditions allows work to flow more efficiently.

Merge Frequency ⓘ

466.24 PRs per month

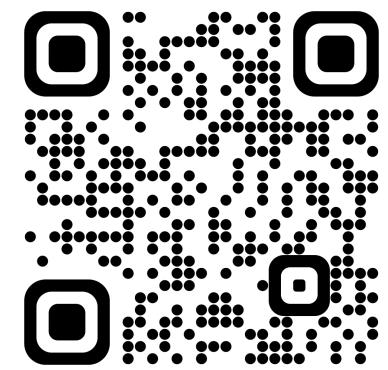


**Learn More  
about LinearB**



Visit us in the  
**Exhibition hall!**

**Checkout FloSports  
Engineering**



[www.flosports.tv/careers/](http://www.flosports.tv/careers/)

# Thank You 😊

Any Questions?