# PipelineAsCode: A CI/CD Workflow Management System through Configuration Files at ByteDance

Xianhao Jin, Yifei Feng, Chen Wang, Yang Liu, Yongning Hu, Yufei Gao, Kun Xia, Luchuan Guo

ByteDance 字节跳动

Continuous Integration & Continuous Deployment (CI/CD)
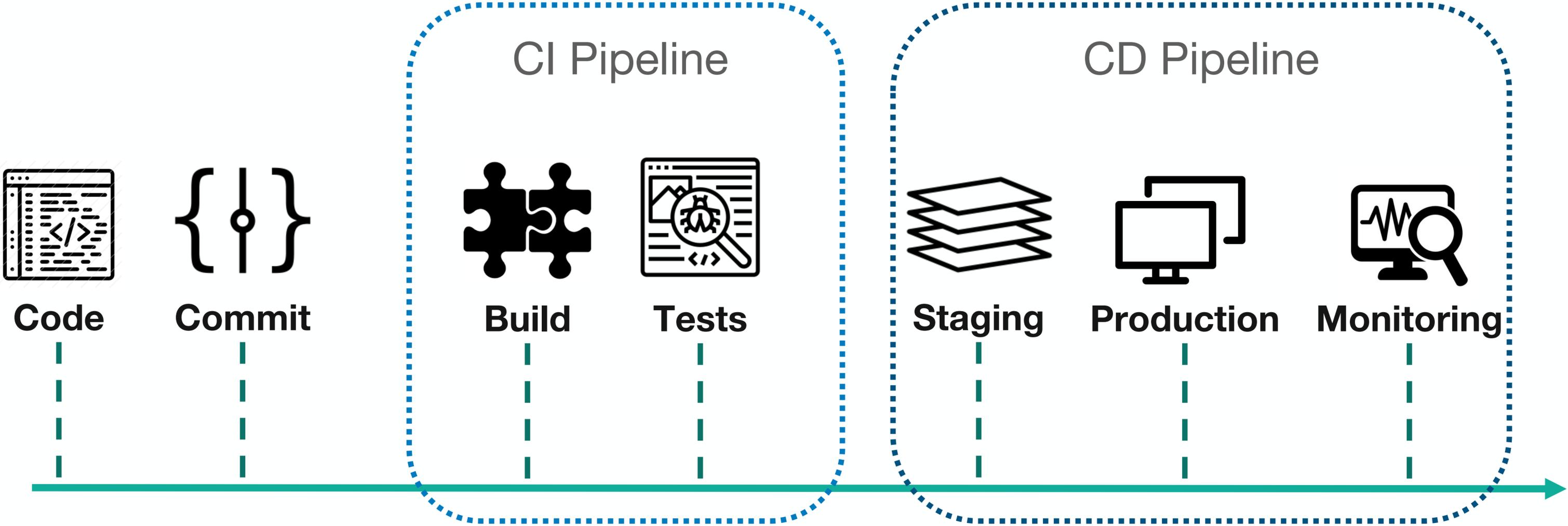
ByteCycle

Pipeline Info

Pipelines / Pipeline details

pac cd ∨ [Delivery] ☆ 👤+
Creator： ▓▓▓▓▓ Created at： 2022-10-01 13:20:05
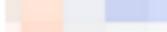
[Edit] [▷ Run] ⋯

[Latest] [All]

Build Info

[Build Details] Build information No.329 • Success ▓▓▓▓ in at 2023-09-01 10:11:53 triggered by git event 🕐 20m8s ✏ Add remarks [Rerun] [Cancel] ⋯

All views ∨ ① Compile and BOE deployment ② Integration test ③ Deploy to BOE prod env

✓ Engine Unit Test
1m58s

✓ SCM facade offline comp...
10m47s

✓ Deploy facade to BOE fea...
1m28s

✓ Integration Test
2m56s

✓ Upgrade facade and engi...
2m58s

Atom

✓ SCM engine offline comp...
1m38s

✓ Deploy engine to BOE fea...
1m20s

Atom Info

Upgrade facade and engin... • Success at 2023-09-01 10:29:03 1th execution View docs

[Details] Log Parameter Variable

cn#canal.pac.engine 🔗 Source link cn#canal.pac.facade 🔗 Source link detail 🔗 Source link

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3

PipelineAsCode (PaC) – Configuration File

Event type

Change ∨   MR merged ✕

* Git repo name

canal/pipeline_as_code

Please fill in the relative path of the git repository (namespace/path), which supports assoc

* Source Branch ⓘ

.*

* Target Branch ⓘ

master

```yaml
platform: BYTECYCLE
workspaceLabel: bytecycle_pac
pipelines:
- id: pac_cd_4613549
  isMain: true
  name: pac cd
  platformId: "4613549"
  triggers:
    - git:
        change:
          commitMessage: .*
          dir: .*
          events:
            - GIT_MR_EVENT_MERGE
          mergeRequestTitle: .*
          repository: canal/pipeline_as_code
          sourceBranch: .*
          targetBranch: master
```

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PipelineAsCode (PaC) – Configuration File

* SCM Repo name

canal/pac/facade

Publishing method

● Branch ○ Commit Hash ○ Tag

* Branch name

master

Version type

○ Production version ● Offline version ○ Test version

Build artifacts storage

☐ Sync to Singapore ☐ Sync to US-East ☐ BVC

Use cache ⓘ

● No ○ Yes

```yaml
steps:
- dependsOn:
  - devops_shell-7850e8
  id: scm_compile_beta-85c56c
  input:
    compile_trigger_branch: false
    rest_upgrade_policy: latest
    scm_configs:
    - compile_without_trigger_event: false
      pub_base: branch_base
      revision: master
      scm_repo_name: canal/pac/facade
      scm_type: offline
      upgrade_policy: normal
      use_cache: "false"
```

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PipelineAsCode (PaC) – Design

PaC CLI

Codebase

PaC SDK

Config files

database

PaC facade

PaC engine

PaC core

ByteCycle
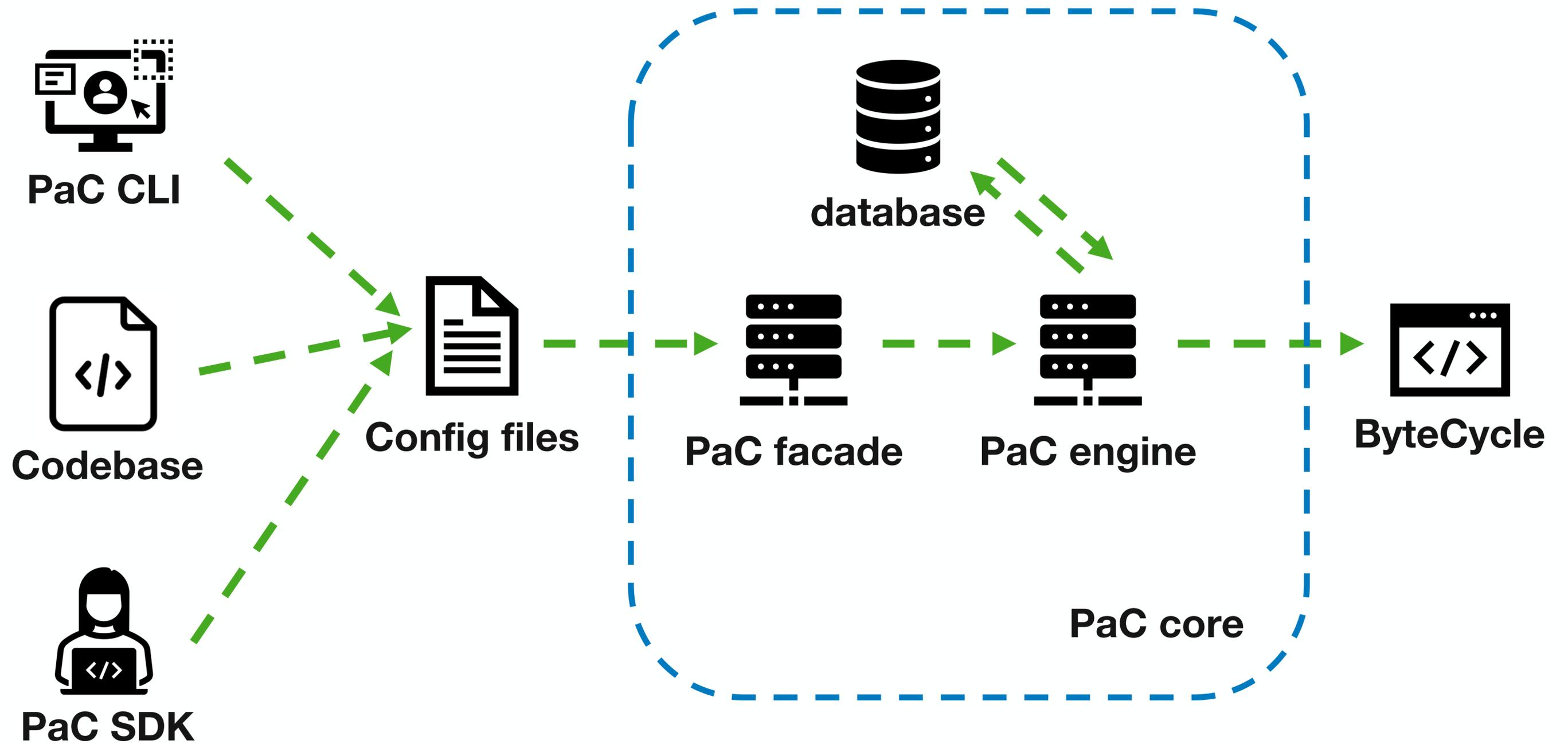
# Evaluation Method

Before PaC vs. After PaC
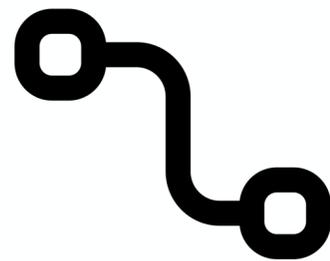
>400 pipelines
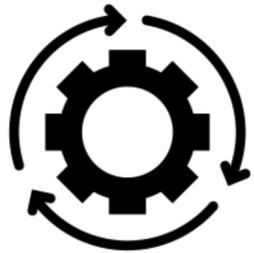
>14,000 builds
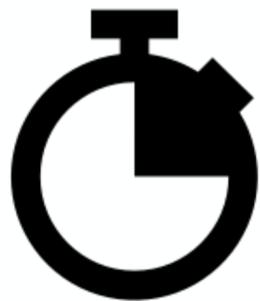
=1 year time
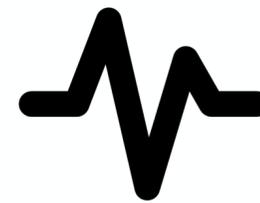
Build frequency
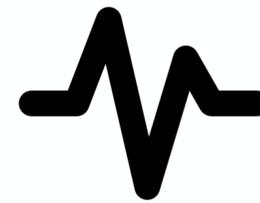
Change frequency
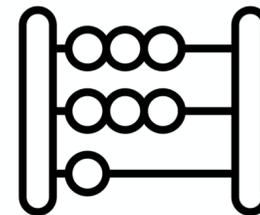
Atom number

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Evaluation Result

Build Frequency
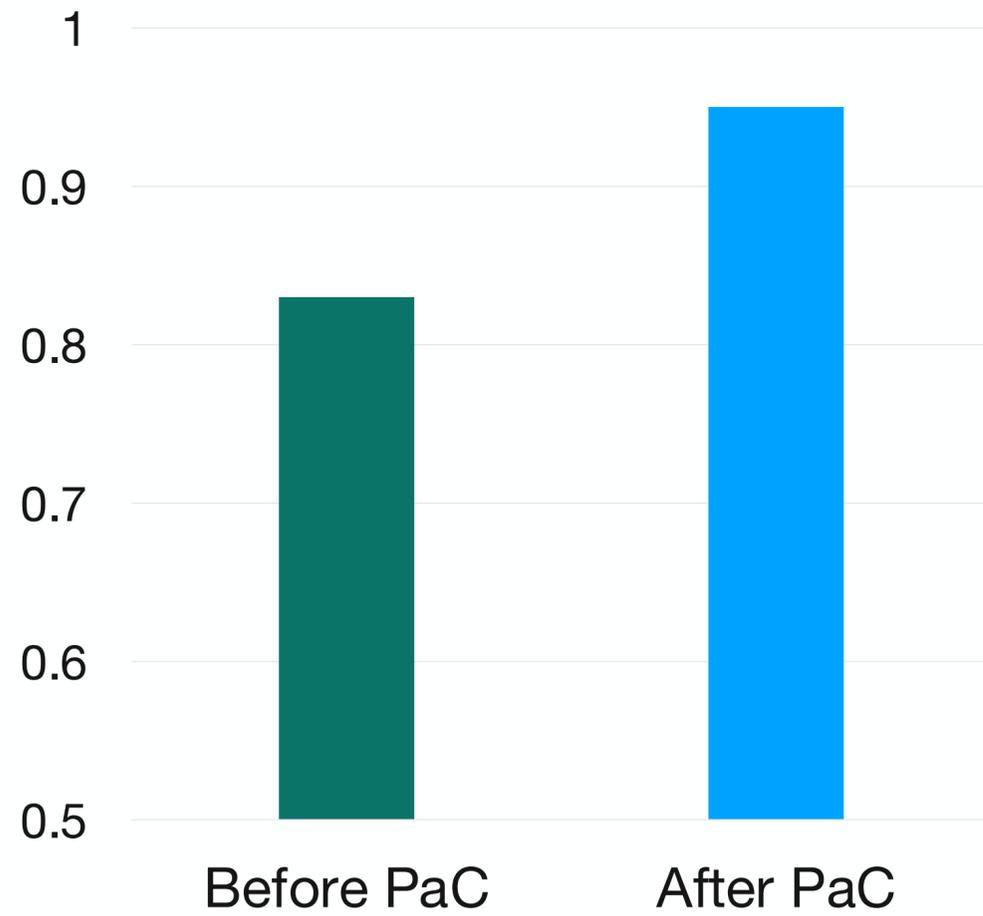
Change Frequency
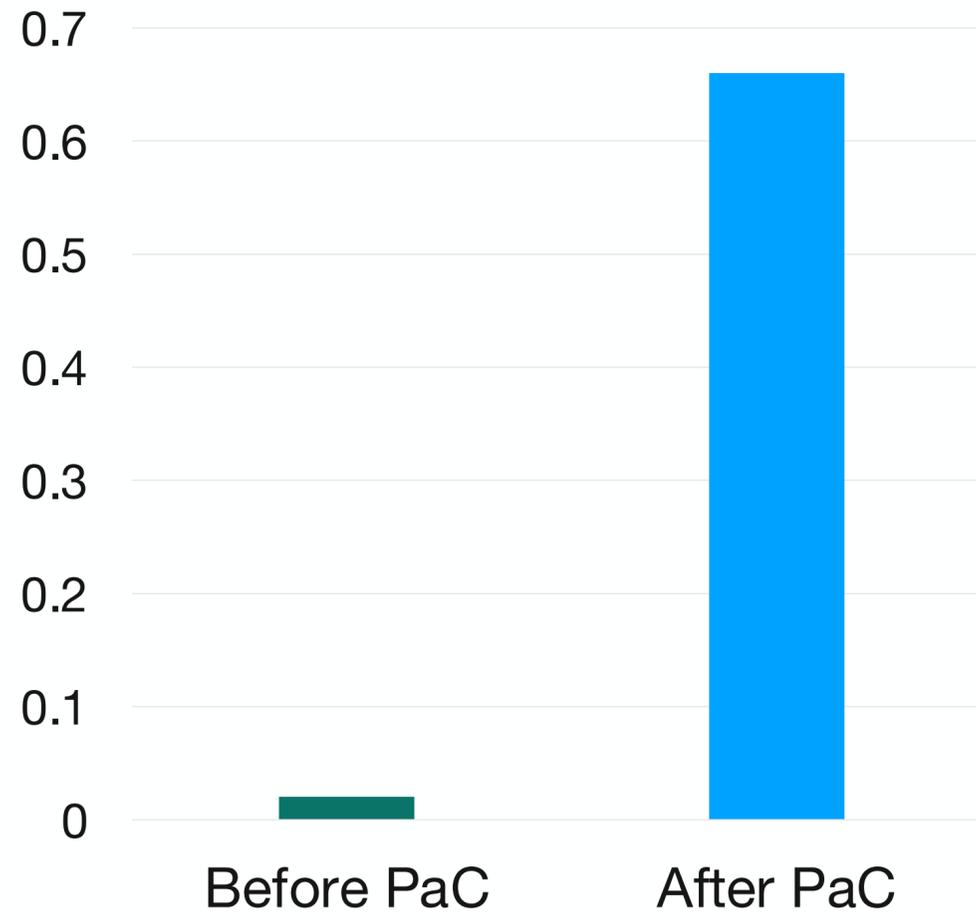
Atom Number
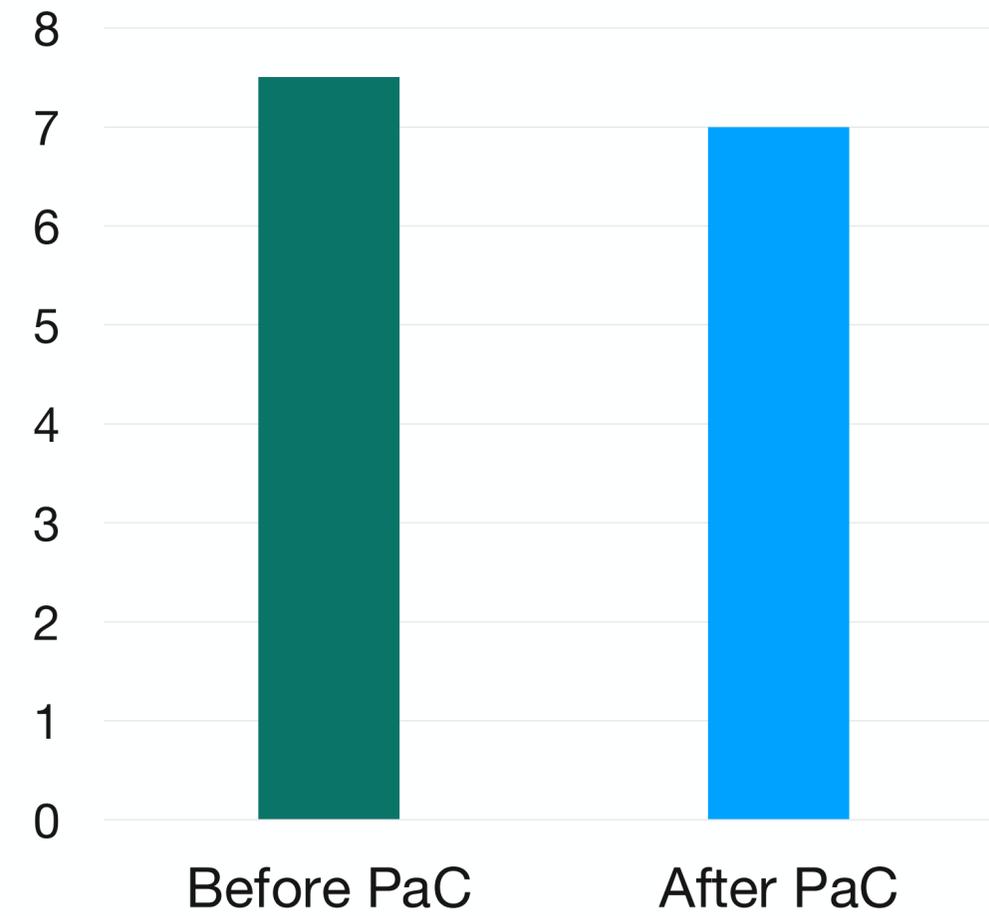
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Forthcoming Challenges

🔍 **Bug detections**

📄 **Simplification**
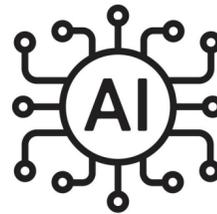
AI **Auto generation**

○○○

THANK YOU

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