

Agenda

! What are CI/CD Pipelines?

😎 Why do we need it?

🔨 Github Actions

💣 Demo

? Q&A

What are CI/CD Pipelines?





Full Form of CI/CD

Continuous **I**ntegration

Continuous **D**elivery (or **D**eployment or both)

CI/CD Pipelines

A CI/CD pipeline is a **series of steps**  that must be performed in order to deliver a **new version**  of software.

A CI/CD pipeline introduces **automation**  to improve the process of application **development** , particularly at the **integration**  and **testing**  phases, as well as during **delivery**  and **deployment**  .

Elements of a CI/CD pipeline



Build - Compile the code



Test - Test features, measure coverage

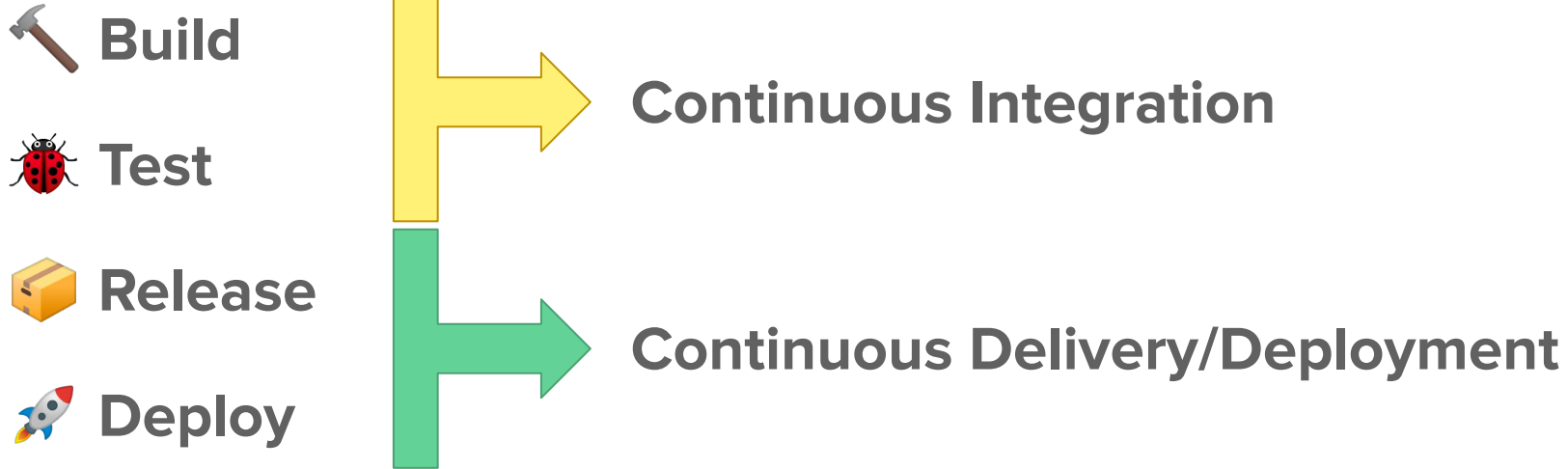


Release - Deliver artifacts to repository



Deploy - Load the artifacts into production environment

Elements of a CI/CD pipeline



Why CI/CD Pipelines are important?

Importance of CI/CD pipelines

 Reduce manual works for Ops team

 More test coverage and fault detection

 Faster release and happy customer

Github Actions

Git is a popular SCM (Source Code Management) tool

Github is a popular hosting service for Git and more

Github Actions are powerful automation tools provided by Github to meet all your CI/CD needs



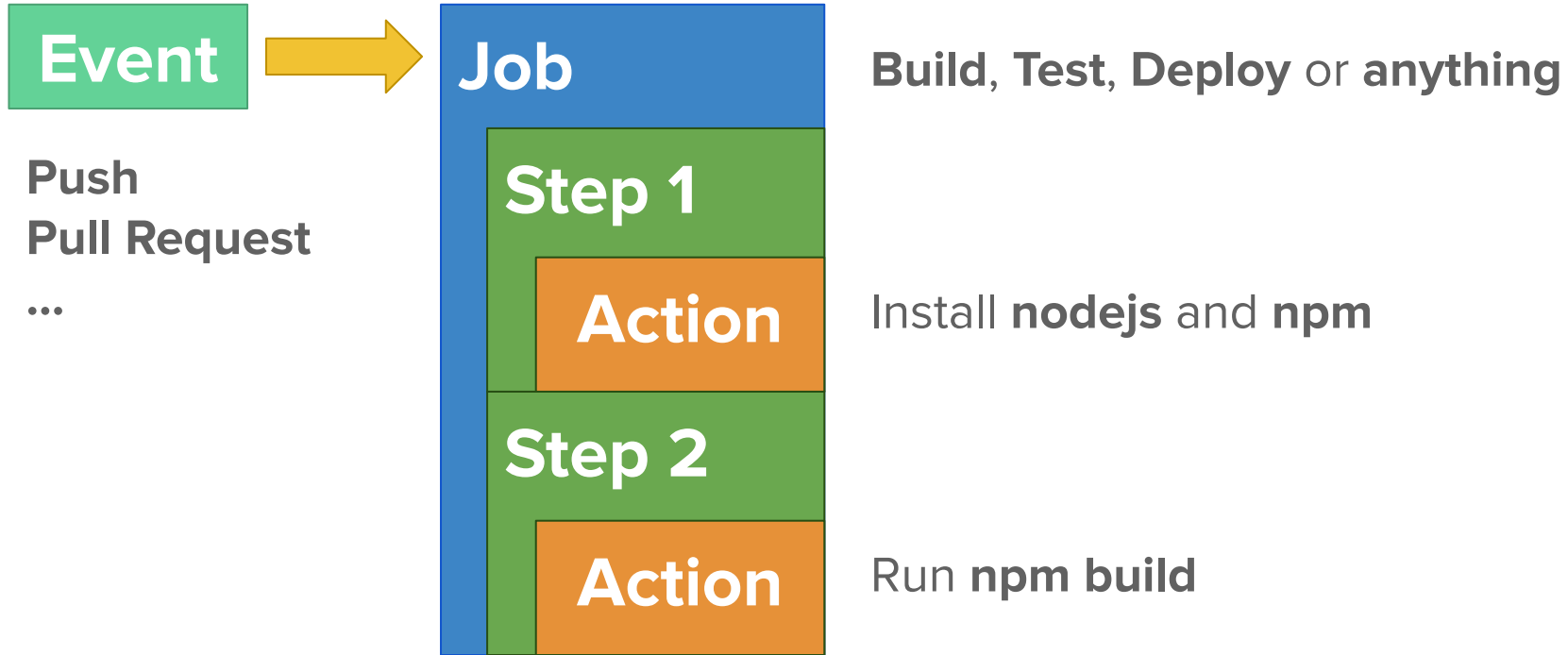
GitHub Actions



Github Actions

- Introduced in late 2018
- YAML based
- Community-driven
- Runs Win, Linux, Mac
- Attractive Pricing

Components of Github Actions



Demo Workflow File

```
name: My CI Workflow
on:
  push:
jobs:
  build:
    runs-on: ubuntu-20.04
    steps:
      - name: Clone repository
        uses: actions/checkout@v2
      - name: Set up Node.js
        uses: actions/setup-node@v2
      - name: Install npm dependencies
        uses: npm install
      - name: Build artifacts
        run: npm run build
      - name: Archive artifacts
        uses: actions/upload-artifact@v2
        with:
          name: demo
          path: dist
```

Workflow Events

```
name: My CI Workflow
on:
  push:
    branches:
      - master
      - release/*
    tags:
      - v1.*
  pull_request:
    branches:
      - main
  schedule:
    - cron: '0 0 * * *'
  workflow_dispatch:
  ...
```

Workflow Jobs

```
name: My CI Workflow
```

```
...
```

```
jobs:
```

```
  build:
```

```
    runs-on: ubuntu-20.04
```

```
    steps:
```

- name: Clone repository
 uses: actions/checkout@v2
- name: Set up Node.js
 uses: actions/setup-node@v2
- name: Install and build
 run: npm install && npm run build

```
  deliver:
```

```
    runs-on: ubuntu-20.04
```

```
    steps:
```

- name: Push to remote
 run: some-command

Workflow Steps and Actions

```
name: My CI Workflow
```

```
...
```

```
jobs:
```

```
  build-linux:
```

```
    runs-on: ubuntu-20.04
```

```
    steps:
```

- name: Set up Node.js
 uses: actions/setup-node@v2
- name: Run commands
 run: npm run build

```
  build-windows:
```

```
    runs-on: windows-latest
```

```
    steps:
```

- name: Set up .NET
 uses: actions/setup-dotnet@v1
- name: Run commands
 run: dotnet build myawesomeproj