

The screenshot shows the GitHub website's main navigation bar at the top, featuring links for Product, Solutions, Resources, Open Source, Enterprise, and Pricing. On the right side of the bar are a search icon, a 'Dashboard' button, and a user profile picture. Below the navigation is a secondary navigation bar with links for Features, Copilot, Security, Actions (which is underlined), Codespaces, Issues, Code Review, Discussions, and Code Search. A large orange arrow-shaped graphic is visible on the left side of the page. In the center, there is a green button labeled 'GitHub Actions'. Below it, a large white text headline reads 'Automate your workflow from idea to production'. Underneath the headline, a gray text description explains what GitHub Actions is: 'GitHub Actions makes it easy to automate all your software workflows, now with world-class CI/CD. Build, test, and deploy your code right from GitHub. Make code reviews, branch management, and issue triaging work the way you want.' At the bottom of the main content area are two white buttons with rounded corners: 'Get started >' and 'Contact sales >'. The entire main content area has a black background.

Product Solutions Resources Open Source Enterprise Pricing

Features Copilot Security Actions Codespaces Issues Code Review Discussions Code Search

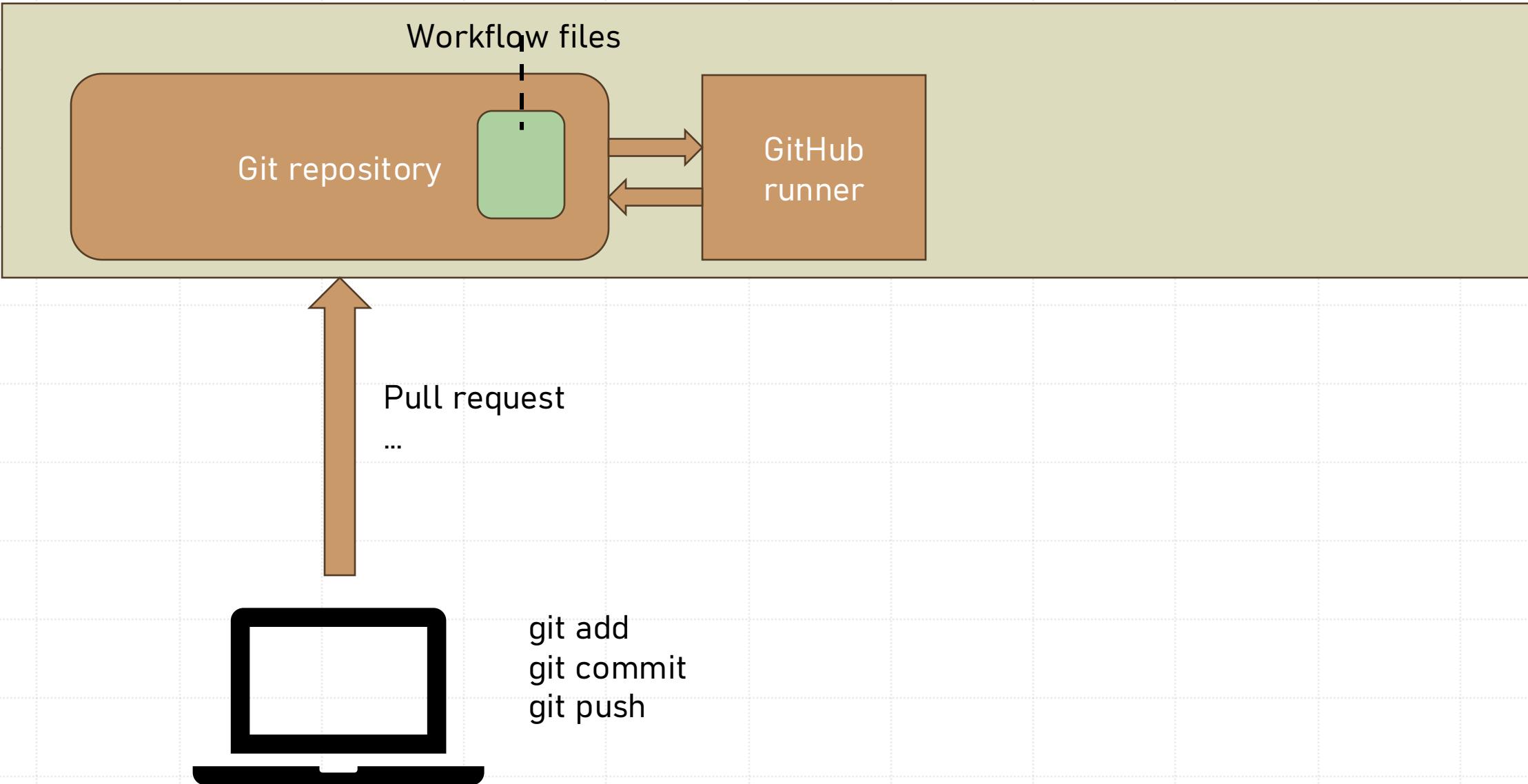
GitHub Actions

Automate your workflow from idea to production

GitHub Actions makes it easy to automate all your software workflows, now with world-class CI/CD. Build, test, and deploy your code right from GitHub. Make code reviews, branch management, and issue triaging work the way you want.

Get started >

Contact sales >



GitHub Actions



GitHub Actions is a CI/CD platform.

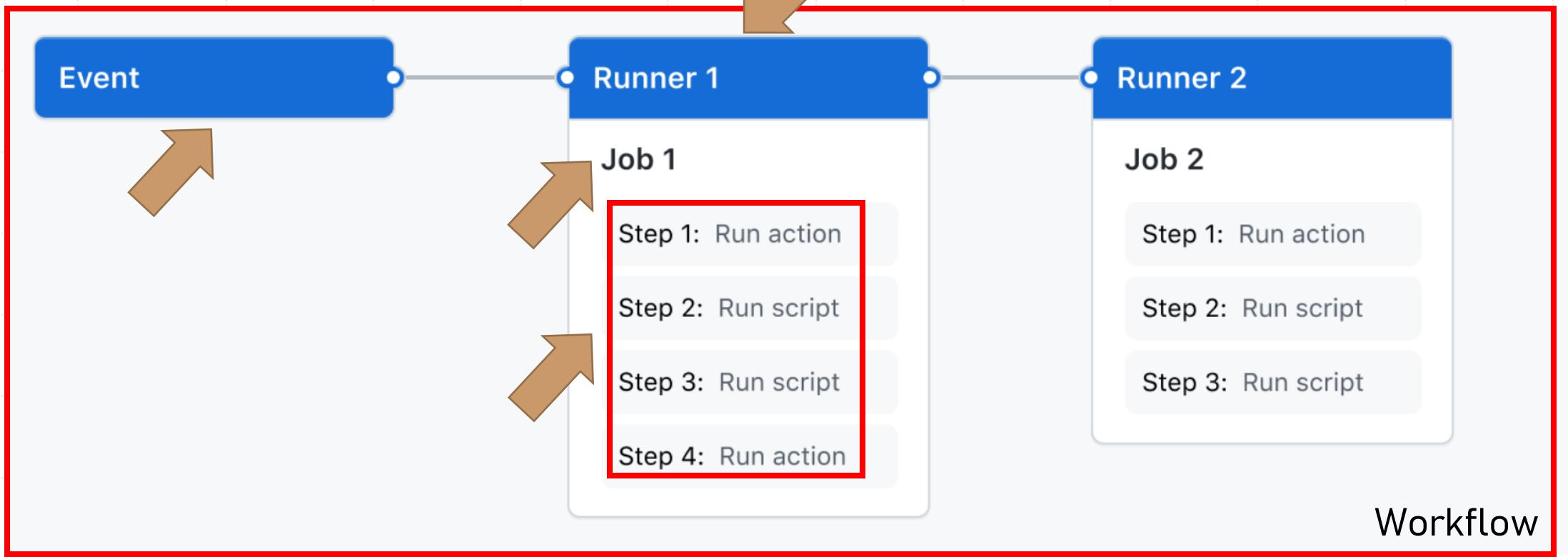


We can create workflows that build and test every pull request and deploy merged pull requests to production.



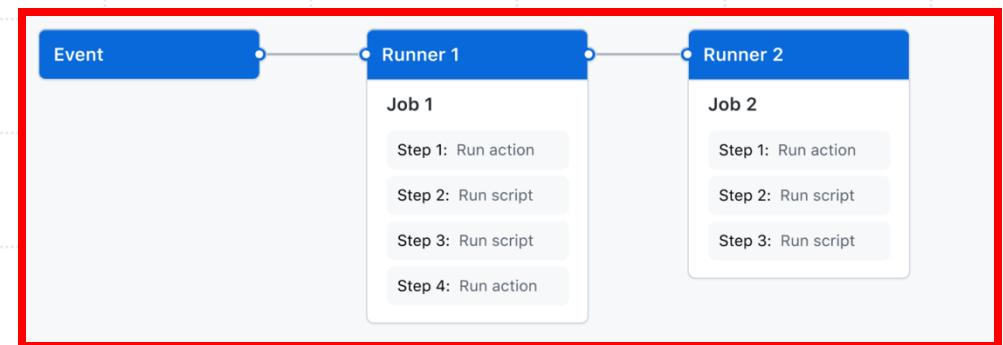
GitHub Actions goes beyond just DevOps as it also allows to run workflows related to other web hook events in git repo such as issues events.

The components of GitHub Actions



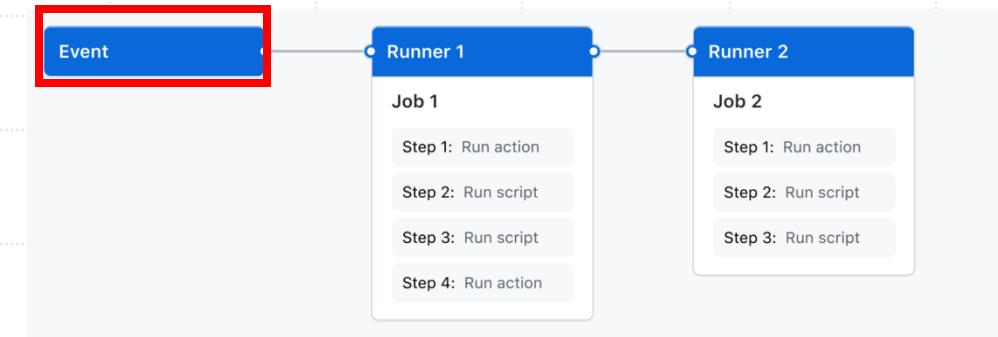
Workflow

- A workflow is a **configurable automated process** that will run on one or more jobs.
- We can define a workflow, in a **YAML file**, under the **.github/workflow** in the repository.
- We can reference a workflow from another workflow, keep in mind to reuse a workflow if possible.



Events

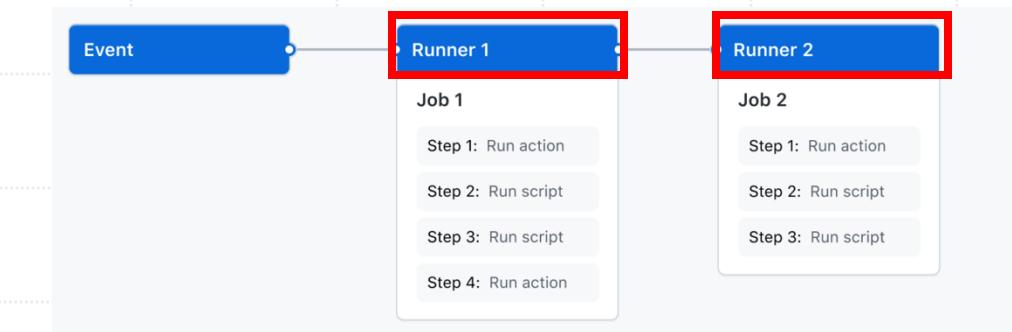
- An event is a specific activity in a repository that triggers a workflow to run.
- Examples of events are **pull request, push a commit, opens an issue, schedule a crontab**, etc.



<https://docs.github.com/en/actions/writing-workflows/choosing-when-your-workflow-runs/events-that-trigger-workflows>

Runners

- A runner is a server that run the workflows when they are triggered.
- Each runner can run a single job at a time.
- GitHub provides Ubuntu Linux, Microsoft Windows, and macOS runners.
- We can also host our own runner also.



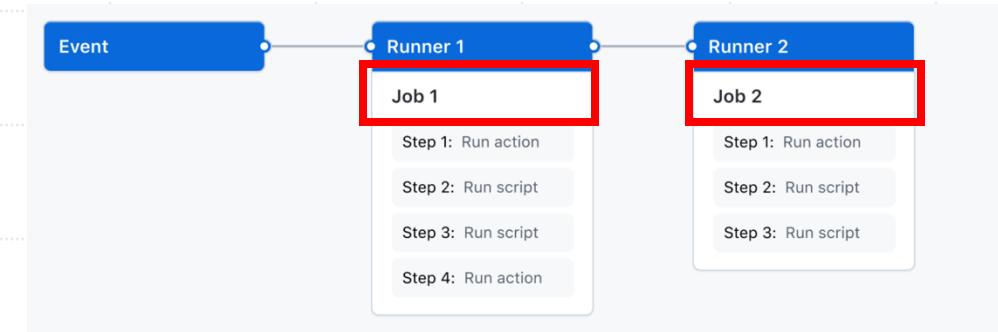
<https://docs.github.com/en/actions/learn-github-actions/understanding-github-actions>

Standard GitHub-hosted runners for public repositories

Virtual Machine	Processor (CPU)	Memory (RAM)	Storage (SSD)	Architecture	Workflow label
Linux	4	16 GB	14 GB	x64	ubuntu-latest , ubuntu-24.04 , ubuntu-22.04 , ubuntu-20.04
Windows	4	16 GB	14 GB	x64	windows-latest , windows-2025 [Public preview], windows-2022 , windows-2019
Linux [Public preview]	4	16 GB	14 GB	arm64	ubuntu-24.04-arm , ubuntu-22.04-arm
macOS	4	14 GB	14 GB	Intel	macos-13
macOS	3 (M1)	7 GB	14 GB	arm64	macos-latest , macos-14 , macos-15 [Public preview]

Jobs

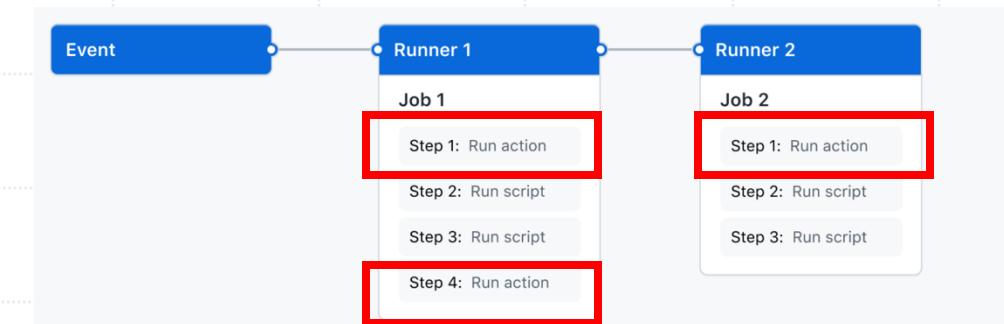
- A job is a set of steps in a workflow that execute on the same runner.
- Each step is either (1) a shell script or (2) an action.



<https://docs.github.com/en/actions/learn-github-actions/understanding-github-actions>

Actions

- An action is a **custom application** for the GitHub Actions platform that performs a complex but frequently repeated task.
- Use an action to **reduce the amount of repetitive code**.
- Examples of actions are
 - **checkout your code** from git repository from GitHub,
 - **setup node.js environment**,
 - **build and push docker image**,
 - and many more....





Marketplace



Type / to search



Enhance your workflow with extensions

Tools from the community and partners to simplify tasks and automate processes

type:actions



Featured

Copilot

Models

Apps

Actions

All actions

AI Assisted

API management

Backup Utilities

Chat

Actions

Automate your workflow from idea to production

Filter: All

By: All creators

Sort: Popularity

**TruffleHog OSS**

Scan Github Actions with TruffleHog

**Metrics embed**

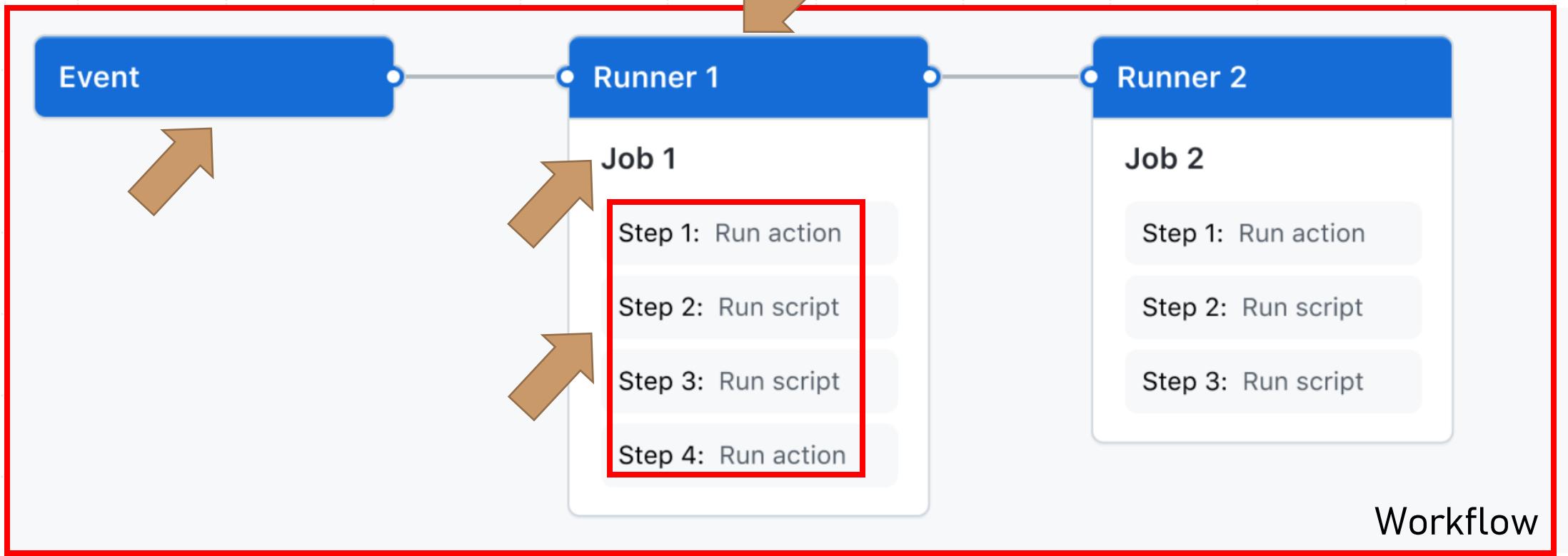
An infographics generator with 40+ plugins and 300+ options to display stats about your GitHub account

**yq - portable yaml processor****Super-Linter**

Super-linter is a ready-to-run collection of linters and code analyzers, to help validate your source code

<https://github.com/marketplace?type=actions>

The components of GitHub Actions





```
name: Run commands on different operating systems
on:
  push: <-- red arrow
    branches: [ main ]
  pull_request: <-- red arrow
    branches: [ main ]
```

jobs:**Run-npm-on-Ubuntu:**

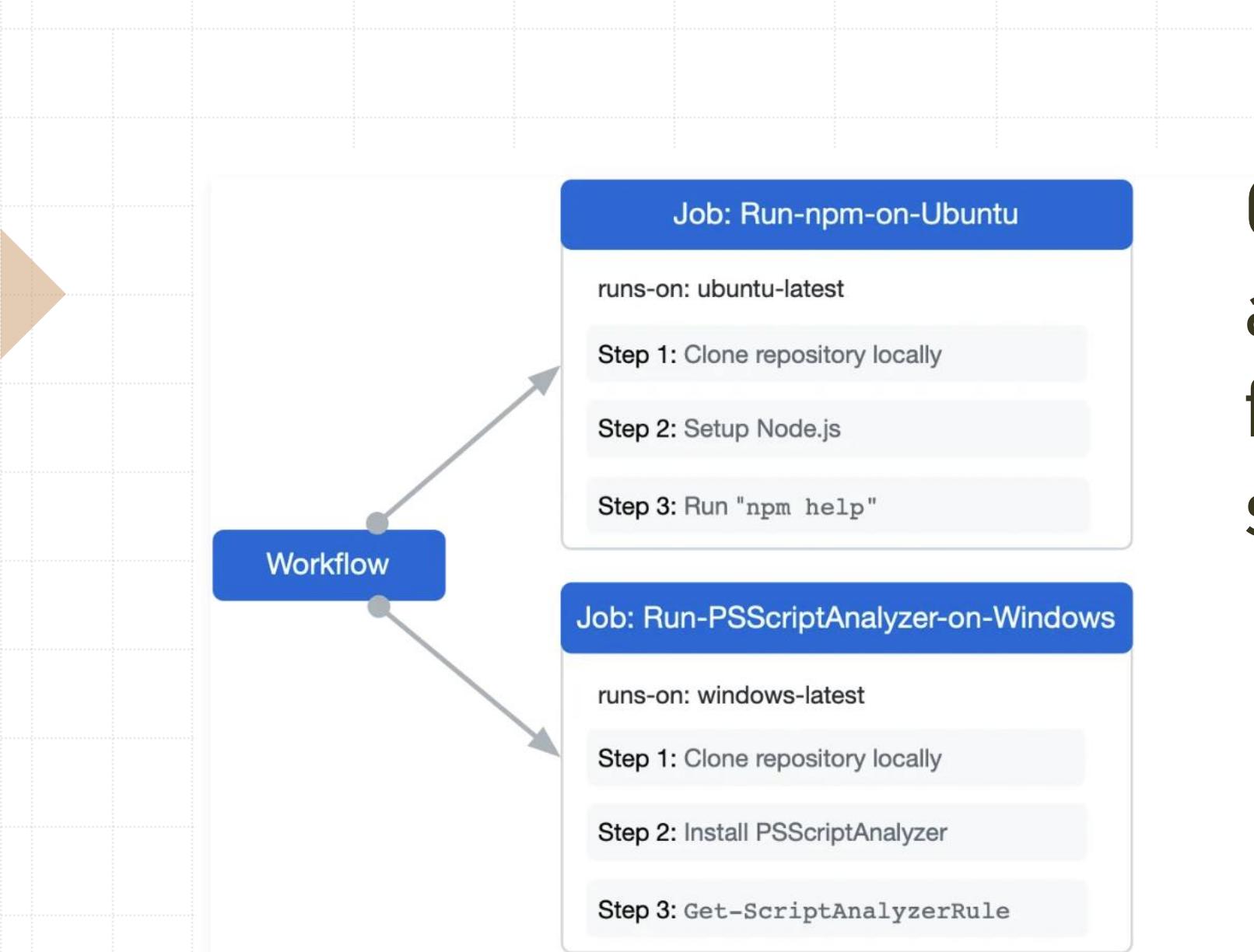
```
  name: Run npm on Ubuntu
  runs-on: ubuntu-latest
  steps:
    - uses: actions/checkout@v4
    - uses: actions/setup-node@v4
      with:
        node-version: '14'
    - run: npm help
```

Run-PSScriptAnalyzer-on-Windows:

```
  name: Run PSScriptAnalyzer on Windows
  runs-on: windows-latest
  steps:
    - uses: actions/checkout@v4
    - name: Install PSScriptAnalyzer module
      shell: pwsh
      run:
        Set-PSRepository PSGallery -InstallationPolicy Trusted
        Install-Module PSScriptAnalyzer -ErrorAction Stop
    - name: Get list of rules
      shell: pwsh
      run:
        Get-ScriptAnalyzerRule
```

An example of a GitHub Action workflow

<https://docs.github.com/en/actions/using-github-hosted-runners/using-github-hosted-runners/about-github-hosted-runners>



GitHub provisions
a VM for each job
from the previous
slide

<https://docs.github.com/en/actions/using-github-hosted-runners/using-github-hosted-runners/about-github-hosted-runners>