An unconventional deep dive Into GitHub Actions

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Momentum

#1
Overall CI

50M+
Jobs per month

50K+
Cloud deployments

5000+
Actions in marketplace
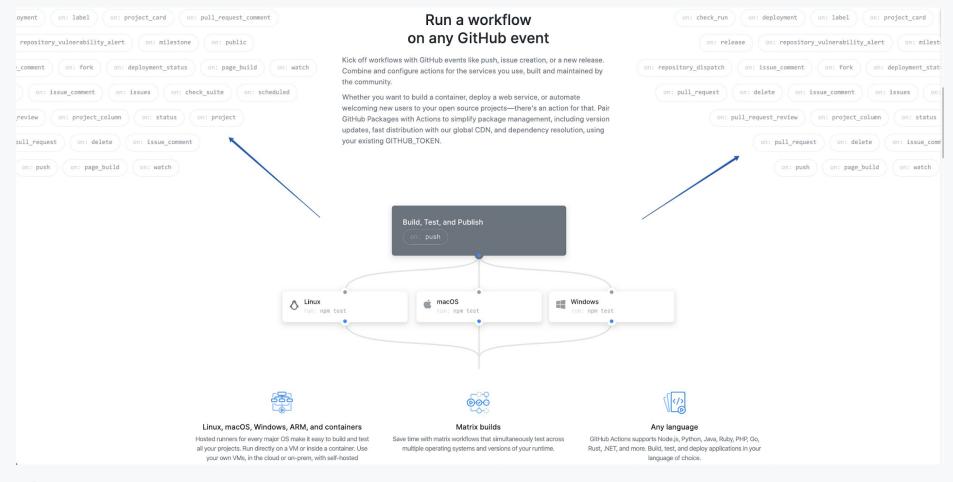
Demo 0 - Offline
DevOps in the embedded C/C++ world
https://github.com/ese-2020/octocat-in-c
https://ese2020.virtual-venue.io/de/session/101/talk/311

IFTTT for DevOps

Run a workflow
on any GitHub event

Kick off workflows with GitHub events like push, issue creation, or a new release. Combine and configure actions for the services you use, built and maintained by the community.

Whether you want to build a container, deploy a web service, or automate welcoming new users to your open source projects—there's an action for that. Pair GitHub Packages with Actions to simplify package management, including version updates, fast distribution with our global CDN, and dependency resolution, using your existing GITHUB_TOKEN.

on: label   on: project_card   on: pull_request_comment
repository_vulnerability_alert   on: milestone   on: public
_comment   on: fork   on: deployment_status   on: page_build   on: watch
on: issue_comment   on: issues   on: check_suite   on: scheduled
review   on: project_column   on: status   on: project
ull_request   on: delete   on: issue_comment
on: push   on: page_build   on: watch

on: check_run   on: deployment   on: label   on: project_card
on: release   on: repository_vulnerability_alert   on: milest
on: repository_dispatch   on: issue_comment   on: fork   on: deployment_stat
on: pull_request   on: delete   on: issue_comment   on: issues
on: pull_request_review   on: project_column   on: status
on: pull_request   on: delete   on: issue_comm
on: push   on: page_build   on: watch

Build, Test, and Publish
on: push

Linux
run: npm test

macOS
run: npm test

Windows
run: npm test

Linux, macOS, Windows, ARM, and containers
Hosted runners for every major OS make it easy to build and test all your projects. Run directly on a VM or inside a container. Use your own VMs, in the cloud or on-prem, with self-hosted

Matrix builds
Save time with matrix workflows that simultaneously test across multiple operating systems and versions of your runtime.

Any language
GitHub Actions supports Node.js, Python, Java, Ruby, PHP, Go, Rust, .NET, and more. Build, test, and deploy applications in your language of choice.

GitHub Actions

Automate your SDLC
with Actions

Customize your software development
lifecycle (SDLC), for CI/CD and more.
Build and test all your
software with Actions Pipeline

Get full enterprise-grade CI/CD, with
hosted and on-premise builds, and
auto-scaling Linux/Windows/Mac
support

ARM 32/ARM64 embedded support

5,000s of shared Actions
and workflows

Build your own or start with an Action
or workflow created by and shared with
the GitHub developer community.

ci.yml

```
1   on: push
2   jobs:
3     test:
4       strategy:
5         matrix:
6           platform: [ubuntu-latest, macos-latest, windows-latest]
7       runs-on: ${{ matrix.platform }}
8       steps:
9       - uses: actions/checkout@master
10      - uses: actions/setup-node@master
11        with:
12          version: 12
14      - run: npm install-ci-test
15      - uses:
```

Remove src folder from cache as well 508d4ef

Azure Pipelines

LGTM.com

Test libzengithub package on main ...
on: push

- ✓ test (macOS-10.14)
- ✓ test (windows-2016)
- ✓ test (windows-2019)
- ✓ test (ubuntu-16.04)
- ✓ test (ubuntu-18.04)
- ✓ test (ARM)
- ✓ test (ARM64)

Test libzengithub package on main platforms / **test (ARM64)**
succeeded 23 hours ago in 1m 5s

Search logs

- ✓ Set up job　　3s
- ✓ Run actions/checkout@master　　3s
- ⊘ Set up Python 3.6.x　　0s
- ⊘ Install C and C++ header files　　0s
- ✓ Install conan && conan package tools　　15s
- ✓ ARM hotfix　　16s
- ✓ Generating conan user directory and building the solution　　27s

```
358   [100%] Built target example
359   ZenGitHub/1.0@jonico/stable (test package): Running test()
360
361              MMM.           .MMM
362            MMMMMMMMMMMMMMMMMMM
363            MMMMMMMMMMMMMMMMMMM
364          MMMMMMMMMMMMMMMMMMMMM  _____
365          MMMMMMMMMMMMMMMMMMMMM | Non-blocking is better than blocking. |
366          MMMMMMMMMMMMMMMMMMMMM |_  _____
367          MMMM::- -:::::::- -::MMMM    |/
368          MM~:~ 00~:::::~ 00~:~MM
369       .. MMMMM::.00:::+:::.00::MMMMM ..
370          .MM::::: ._. :::::MM.
371              MMMM;:::::;MMMM
372         -MM         MMMMMMM
373        ^  M+       MMMMMMMMM
374          MMMMMMM MM MM MM
375              MM MM MM MM
376              MM MM MM MM
377          .~~MM~MM~MM~MM~~.
378       ~~~~MM:~MM~~~MM~:MM~~~~
```

Why unconventional?

- Few slides -> mostly live demos (on repos you can try)
- IssueOps demo can be done by product owners and GitHub beginners
- Focus on IFTTT
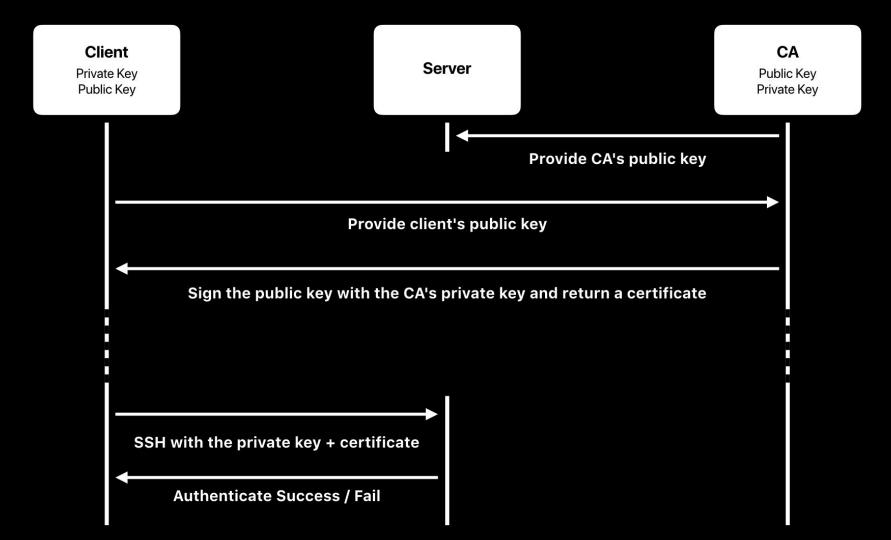
Demo 1

https://github.com/sdras/awesome-actions

Demo 2
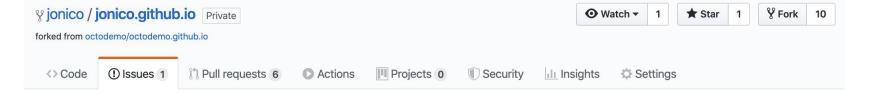IssueOps in the security space
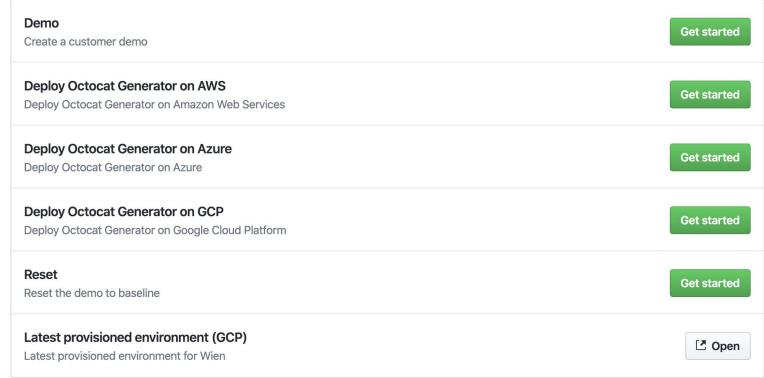https://github.com/ese-2020/issue-ops

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Demo 3

IssueOps, IOT & the Octocat generator

https://github.com/ese-2020/ese-2020.github.io

👁 Watch ▾   1   ★ Star   1   ⑂ Fork   10

<>Code   ⓘ Issues 1   ⑂ Pull requests 6   ▶ Actions   ▦ Projects 0   🛡 Security   �📊 Insights   ⚙ Settings

Demo
Create a customer demo

Get started

Deploy Octocat Generator on AWS
Deploy Octocat Generator on Amazon Web Services

Get started

Deploy Octocat Generator on Azure
Deploy Octocat Generator on Azure

Get started

Deploy Octocat Generator on GCP
Deploy Octocat Generator on Google Cloud Platform

Get started

Reset
Reset the demo to baseline

Get started

Latest provisioned environment (GCP)
Latest provisioned environment for Wien

⎋ Open

Don't see your issue here? Open a blank issue.   Edit templates

Run on your own hardware for free with self-hosted
runners, including ARM/ARM64

Finding workflows
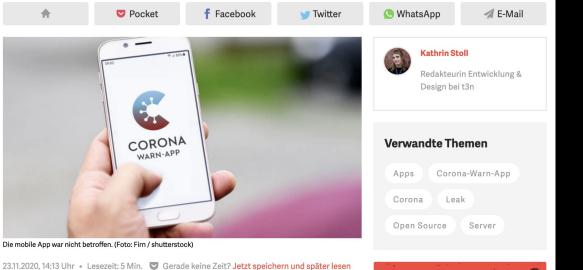
language:yml path:.github/workflows conan boost

Open Source sei Dank: So fanden Experten eine Schwachstelle im Server der Corona-Warn-App

🏠 · ❤ Pocket · f Facebook · 🐦 Twitter · 🟢 WhatsApp · ✈ E-Mail

Die mobile App war nicht betroffen. (Foto: Firn / shutterstock)

Kathrin Stoll
Redakteurin Entwicklung & Design bei t3n

Verwandte Themen

Apps · Corona-Warn-App · Corona · Leak · Open Source · Server

23.11.2020, 14:13 Uhr • Lesezeit: 5 Min. • ✉ Gerade keine Zeit? Jetzt speichern und später lesen

Ein Cybersecurity-Experte hat eine Sicherheitslücke in der Infrastruktur der Corona-Warn-App entdeckt. Die Hintergründe und der weitere Verlauf der Geschichte zeigen einmal mehr die Vorteile von Open-Source-Software.

Alvaro Muñoz' Job beim GitHub Security Lab ist es, Schwachstellen in Open-

Finding workflows

language:yml path:.github/workflows

@corona-warn-app codeql

Get inspired

- https://github.com/sdras/awesome-actions

- https://github.blog/changelog/

- https://github.com/ese-2020/awesome-actions

Try Actions Today

github.com/features/actions

The 2015 Volkswagen Golf GTI is an incredible machine! Find ...

The 2015 **Volkswagen** Golf **GTI** is an **incredible machine**! Find out more about what it can do for you at Owens Murphy **Volkswagen** in Little Rock, AR!

Videos

3:07

The Incredible Machine Review by appgefahren.de

appgefahren.de Insider
YouTube - Jul 2, 2011

2:39

2018 VOLKSWAGEN GOLF GTI

Incredible Machines
YouTube - Sep 27, 2017

1:34

Volkswagen GTI - R31 Machine Black

Regen5 Wheels
YouTube - Aug 7, 2017

🤙🏻 My Actions *PRO Tips*

```
# PRO Tip no. 1
# Trigger workflows externally

on: repository_dispatch

# POST /repos/:owner/:repo/dispatches
{
  "event_type": "custom-name",
  "client_payload": {
    "custom_message": "Hello world!"
  }
}
```

```yaml
# PRO Tip no. 2
# Scheduled workflows with CRON syntax

on:
  schedule:
    # * is a special character in YAML
    # so you have to quote this string
    - cron: '*/15 * * * *'
```

```
# PRO Tip no. 3
# Resolve dependencies across jobs

jobs:
  Job1:
   # ...
  Job2:
      needs: Job1
      # ...
   Job3:
      needs: [Job1, Job2]
      # ...
```

```yaml
# PRO Tip no. 4
# Run a job based on previous step exit status

jobs:
  MyJob:
    Steps:
        # ...
        - name: Trigger alert
          if: failure()
          # if: success()
          # if: canceled()
          # if: always()
```