



# Unleashing Open Data with GitHub Actions

Jack Gilmore



# Short intro

- Software developer for NHS Education for Scotland
- Co-founder of Dundee Data Meetup
- Technical lead for Open Data Scotland
- Trustee of Code the City
- Not affiliated with GitHub

# Outline

- Key concepts
- Case studies
- Practical example / proof of concept
- Wrap-up
- Q & A



# Key concepts

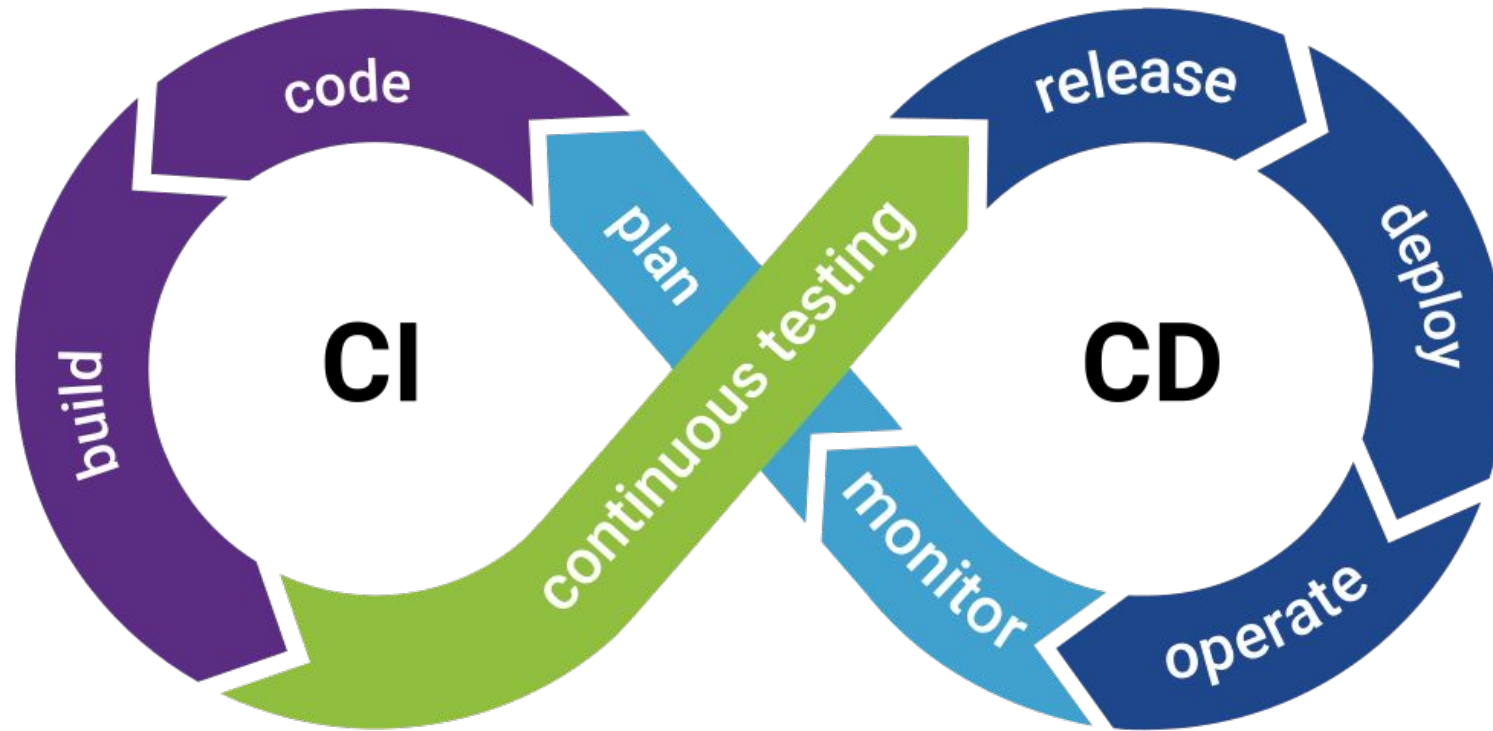




# What is GitHub?



# What is CI/CD?





# What is GitHub Actions?

# GitHub Actions

- Runs jobs on Linux, Windows and macOS (including M1)
- Triggers manually, scheduled or based on events
- Containerised setup
- Marketplace of reusable actions
- YAML based but has web-based editor
- Free private usage of 2,000 mins/month - public runs free!





# Case study #1

## Open Data Scotland's data pipeline





How do we keep an eye  
on 2000+ open datasets?

# Open Data Scotland pipeline

- Weekly scheduled workflow running Python in Docker
- Uses Git to publish results to repositories
- Commits to repositories trigger another workflow for site build
- Pipeline has ran for 2 years

# Checking uptime

## Broken URL for Research Data Scotland #265

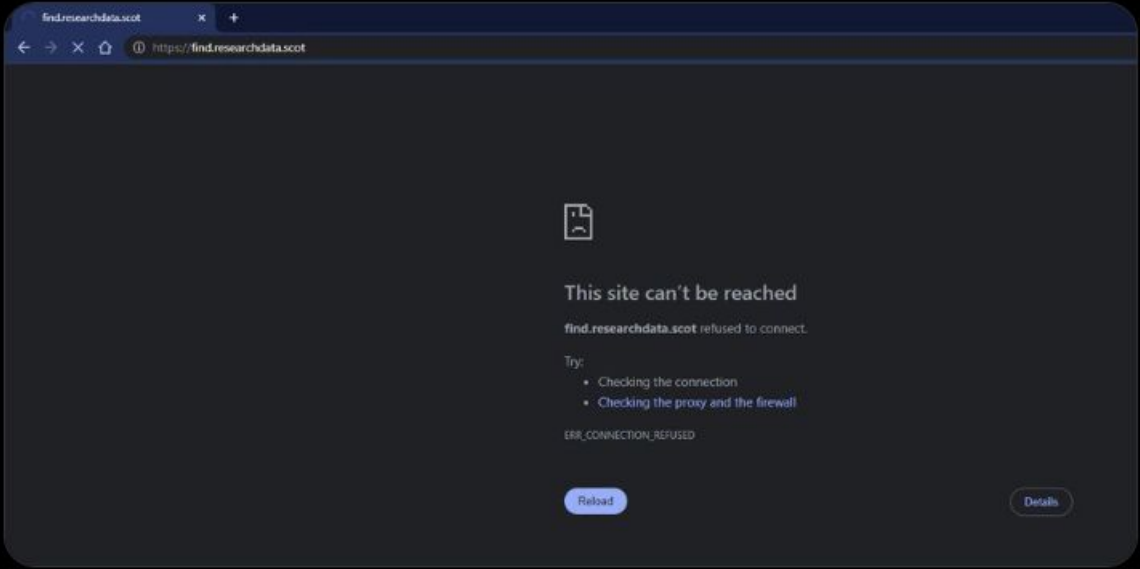
✓ Closed JackGilmore opened this issue on Mar 6 · 1 comment

JackGilmore commented on Mar 6 Member

Broken URL: <https://find.researchdata.scot/>

**Open Data Scotland** @opendata\_sco

Hey @RDS\_Scotland. Looks like your data portal is having issues today? 😞



10:46 AM · Mar 6, 2024 · 160 Views

1 comment · Retweet · Like · Bookmark · Share

Post your reply Reply

**Research Data Scotland** @RDS\_Scotland · Mar 6

Thanks for flagging! We're looking into it 😊

2 likes · 56 views · Share

## STATE OF OPEN CON 23



Karen Jewell  
Maintainer  
Open Data Scotland  
"Learnings from Navigating Scotland's  
Open Data Landscape"  
Open Data Track

Presented By:  
**Open:UK** 

#SOOCon23 #stateofopencon

In Association  
with: **IEEE SA  
OPEN**

## STATE OF OPEN CON 23



Jack Gilmore  
Technical Lead  
Open Data Scotland  
"Scotland's Open Data: Tech, tables  
and tools"  
Open Data Track

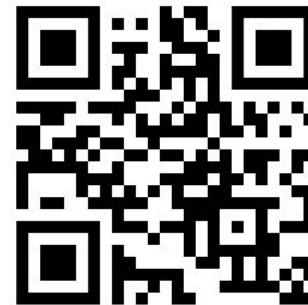
Presented By:  
**Open:UK** 

#SOOCon23 #stateofopencon

In Association  
with: **IEEE SA  
OPEN**

# Recordings from last year's State of Open Conference

<https://opendata.scot/media>





# Case study #2

DC Thomson's NHS hospital trackers



# 1. Setup

> ✓ Set up job	2s
> ✓ Run actions/checkout@v3	2s
> ✓ Set up Python 3.10	0s
> ✓ Install dependencies	12s
> ✓ Lint with flake8	0s

# 2. Run

> ✓ Set up job	2s
> ✓ Run actions/checkout@v3	6s
> ✓ Run r-lib/actions/setup-r@12d5b556c5...	2m 5s
> ✓ Install packages	1m 40s

> ✓ Delayed discharges	8s
> ✓ A&E waiting times	8s
> ✓ Beds info	9s
> ✓ Diagnostic waits	32s

> ✓ Run CAHMS script	5s
> ✓ Run Drug and Alcohol script	3s
> ✓ Run IVF script	4s
> ✓ Run musculoskeletal script	4s
> ✓ Run psychological therapies script	3s
> ✓ Run cancer script	5s
> ✓ Run A&E waiting times discharge location...	12s
> ✓ Run A&E waiting times when is busiest ...	1m 7s

# 3. Publish

> ✓ Commit files	1s
> ✓ Post Run actions/checkout@v3	1s
> ✓ Complete job	0s

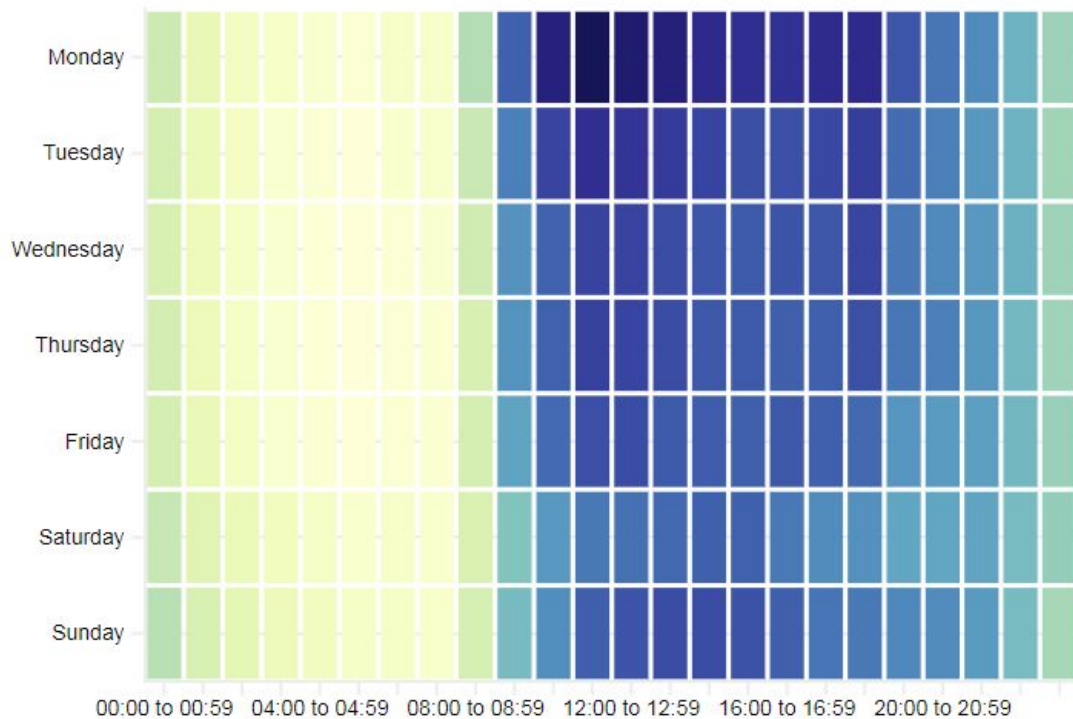
> ✓ commit files	1s
⊗ Push changes	0s
> ✓ Post Set up Python 3.10	0s
> ✓ Post Run actions/checkout@v3	0s
> ✓ Complete job	0s

## When is the busiest time at A&E?

Chart shows the number of attendances to A&E by hour for each day of the week from January 2018 to the latest data available

Select your health board: **NHS Greater Glasgow and Clyde**

Number of attendances 2000  22,000



Source: [Public Health Scotland](#)

## MRI waiting times

Chart shows the waiting times for each period of time for an MRI (magnetic resonance imaging) scan each month by health board, where being seen within six weeks is the target

Select your health board: **Scotland**

 Within 6 weeks  Over 6 weeks



Source: [Public Health Scotland](#)



# Other use cases?

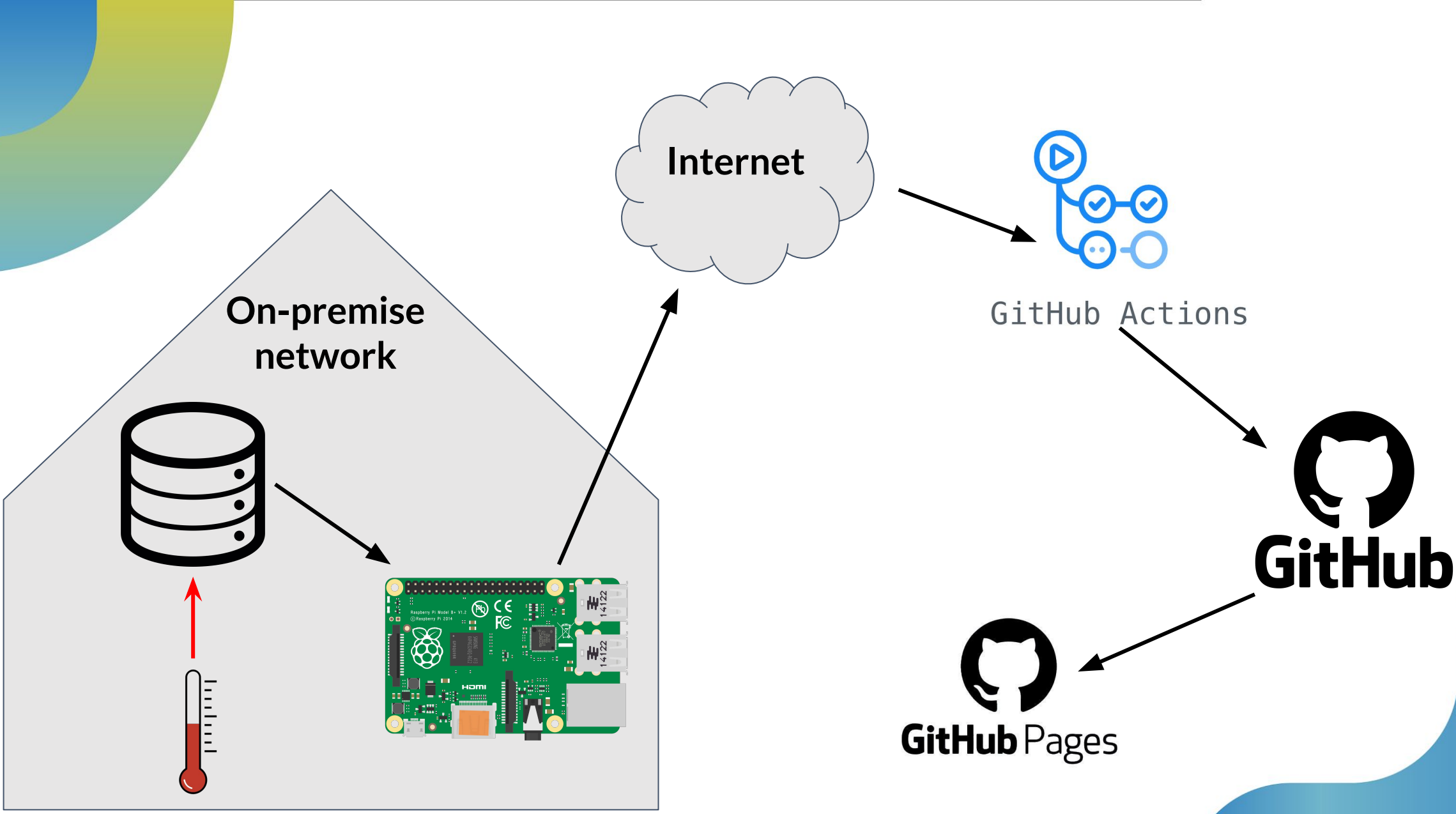
- Extract, transform and load (ETL) jobs
- Machine learning (MLOps)
- Internal reporting and tooling
- Data scraping
- Code linting

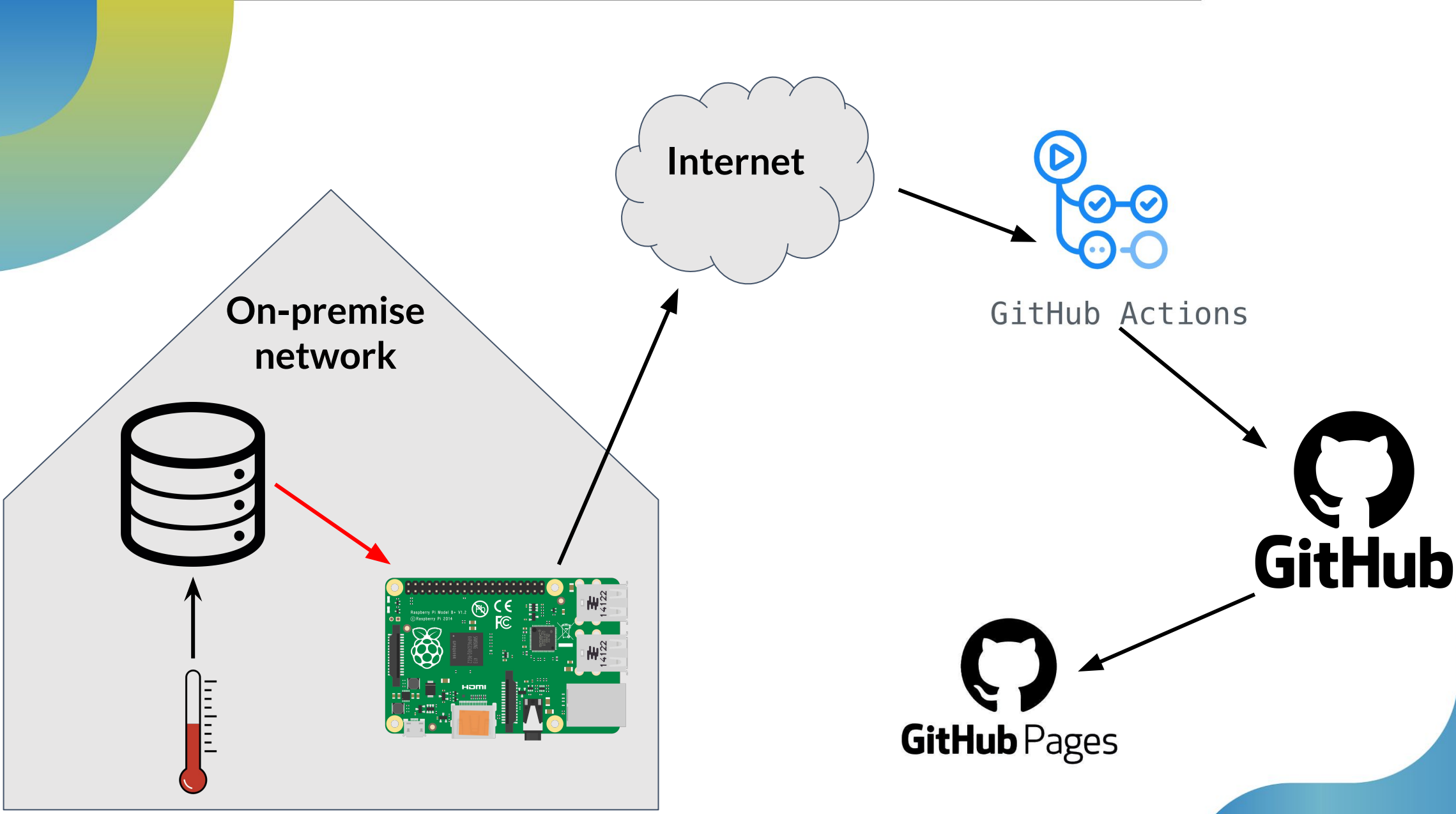


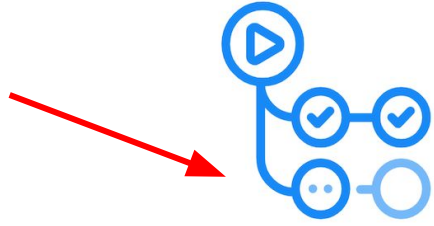
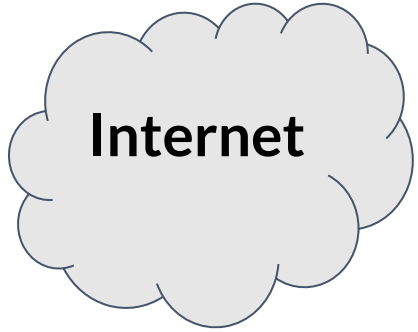
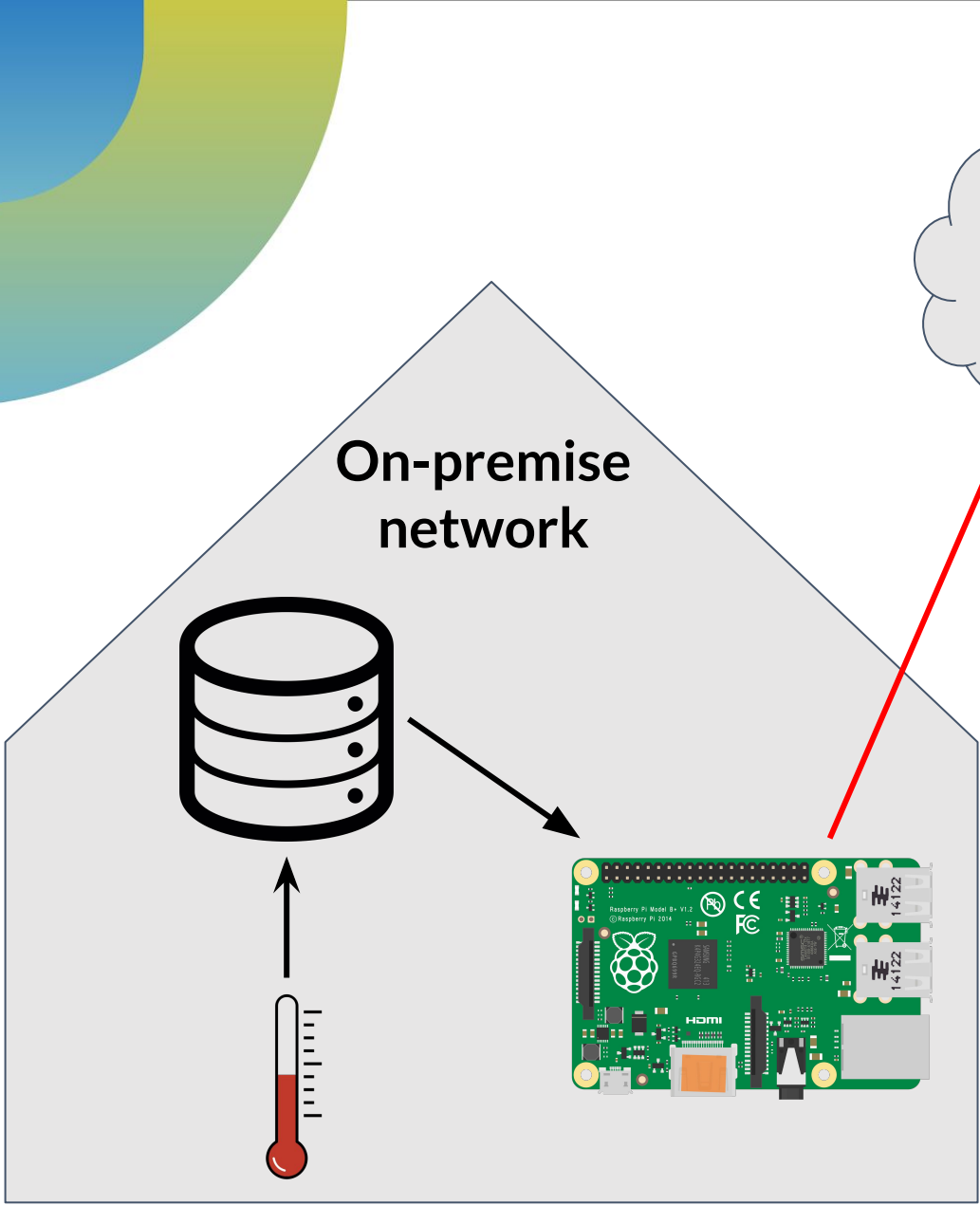
# Practical example

Exporting data from an on-premise source









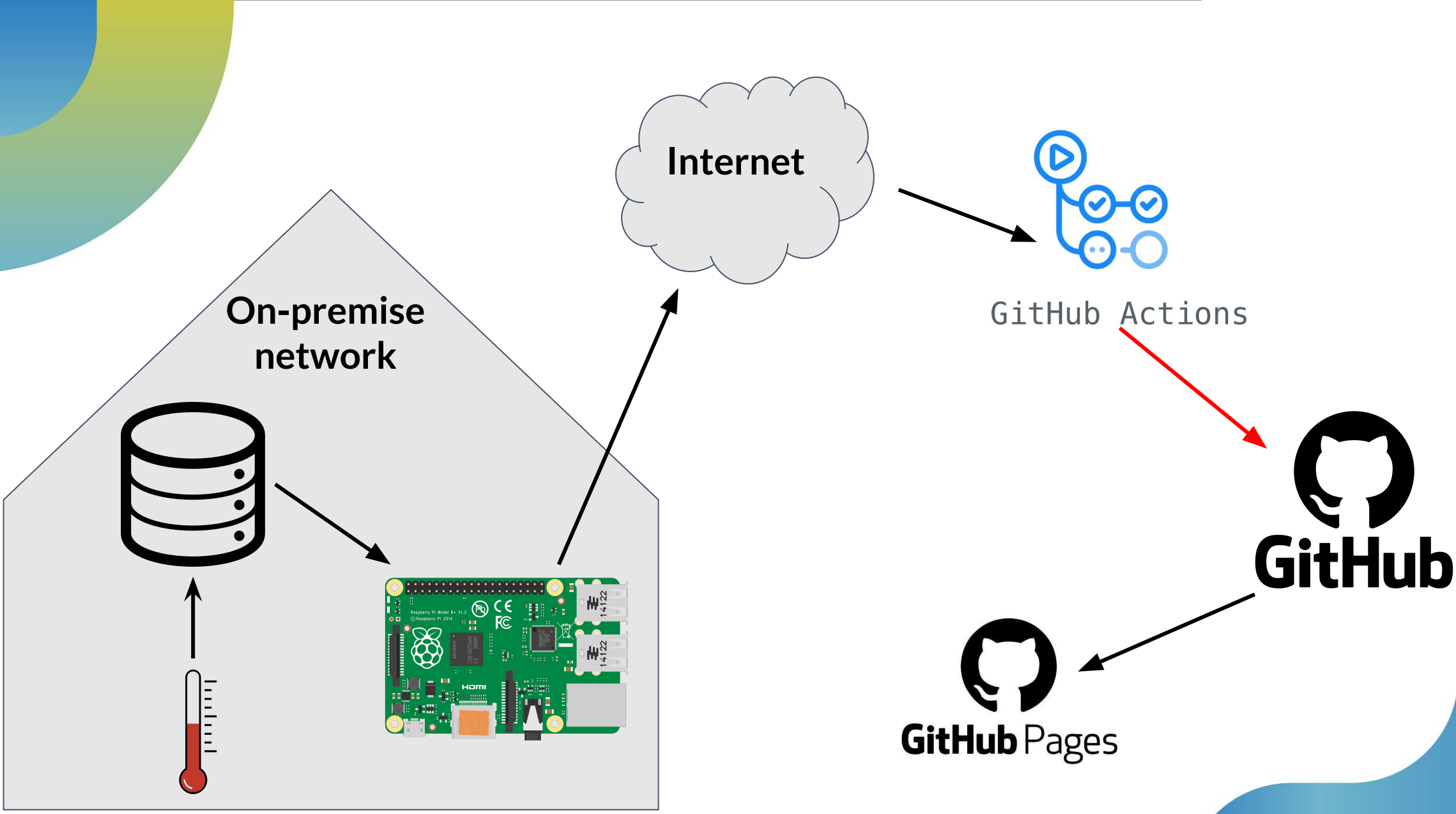
GitHub Actions

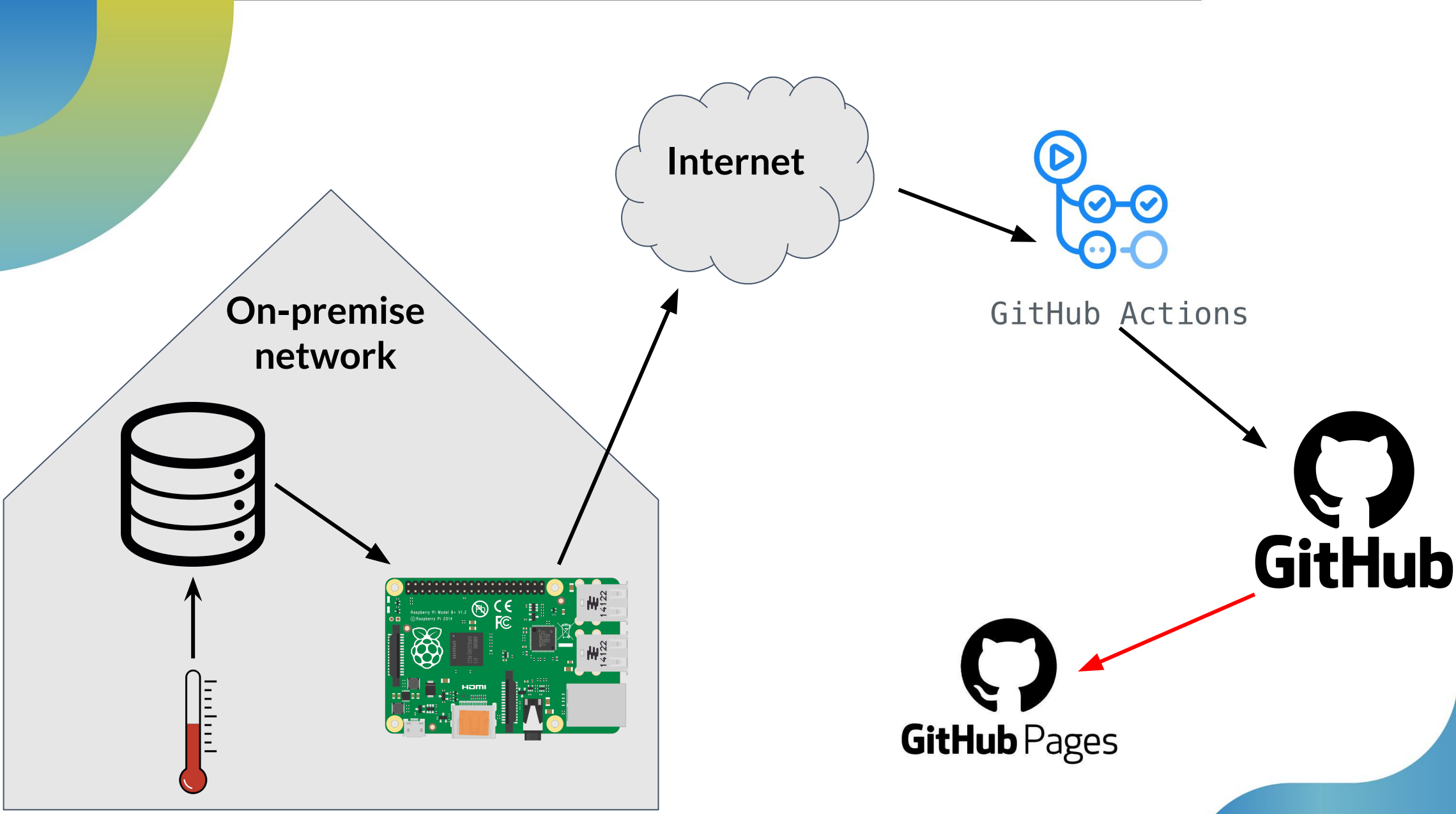


**GitHub**



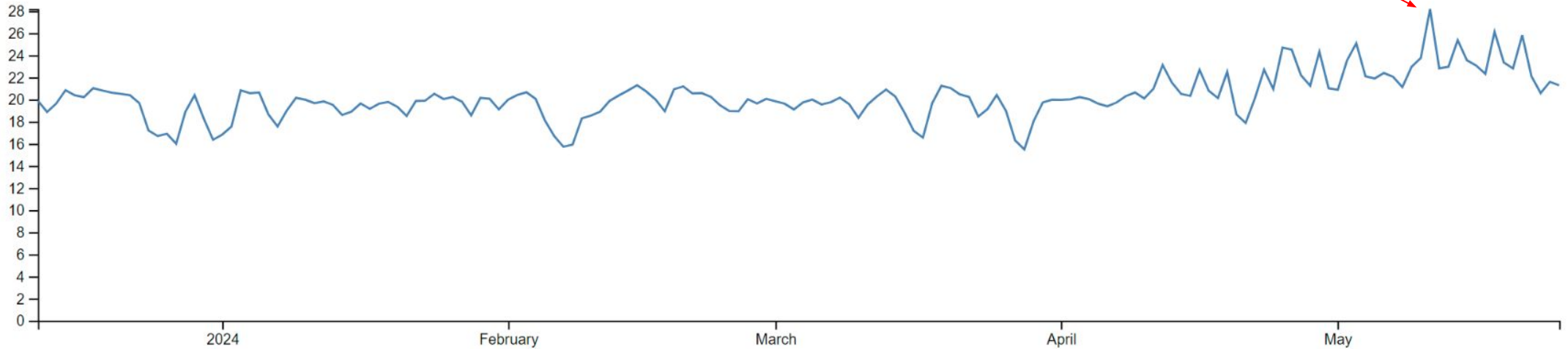
**GitHub Pages**





# Temperature dashboard

Remember when it was really warm a few weeks ago?



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<https://temperatures.jack.gilmore.scot>





# Tips and takeaways

- Watch your usage
- Containerize for consistency
- Keep secrets safe
- Save £ with self-hosted

# Thank you

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 <https://linkedin.com/in/gilmorejc>

 [@JackGilmore](https://github.com/JackGilmore)

# Links of reference

- Open Data Scotland website: <https://opendata.scot>
- Open Data Scotland GitHub: <https://github.com/opendatascotland>
- DC Thomson GitHub: <https://github.com/dctdatateam>
- DC Thomson data trackers: <https://www.thecourier.co.uk/tag/data>
- POC code: <https://github.com/JackGilmore/TemperatureDashboard>