

# GitHub Applets

Brainstorming session on enabling an applet-inspired  
Blueprint approach based on Fission Workflows



# Recap: what's Fission again?

- **Fission** is a framework for serverless functions on K8S
- Functions are code that gets triggered by HTTP requests OR events
- Functions are deployed **instantly**
- No container maintenance needed!
- ✨ An awesome find by Lee ✨



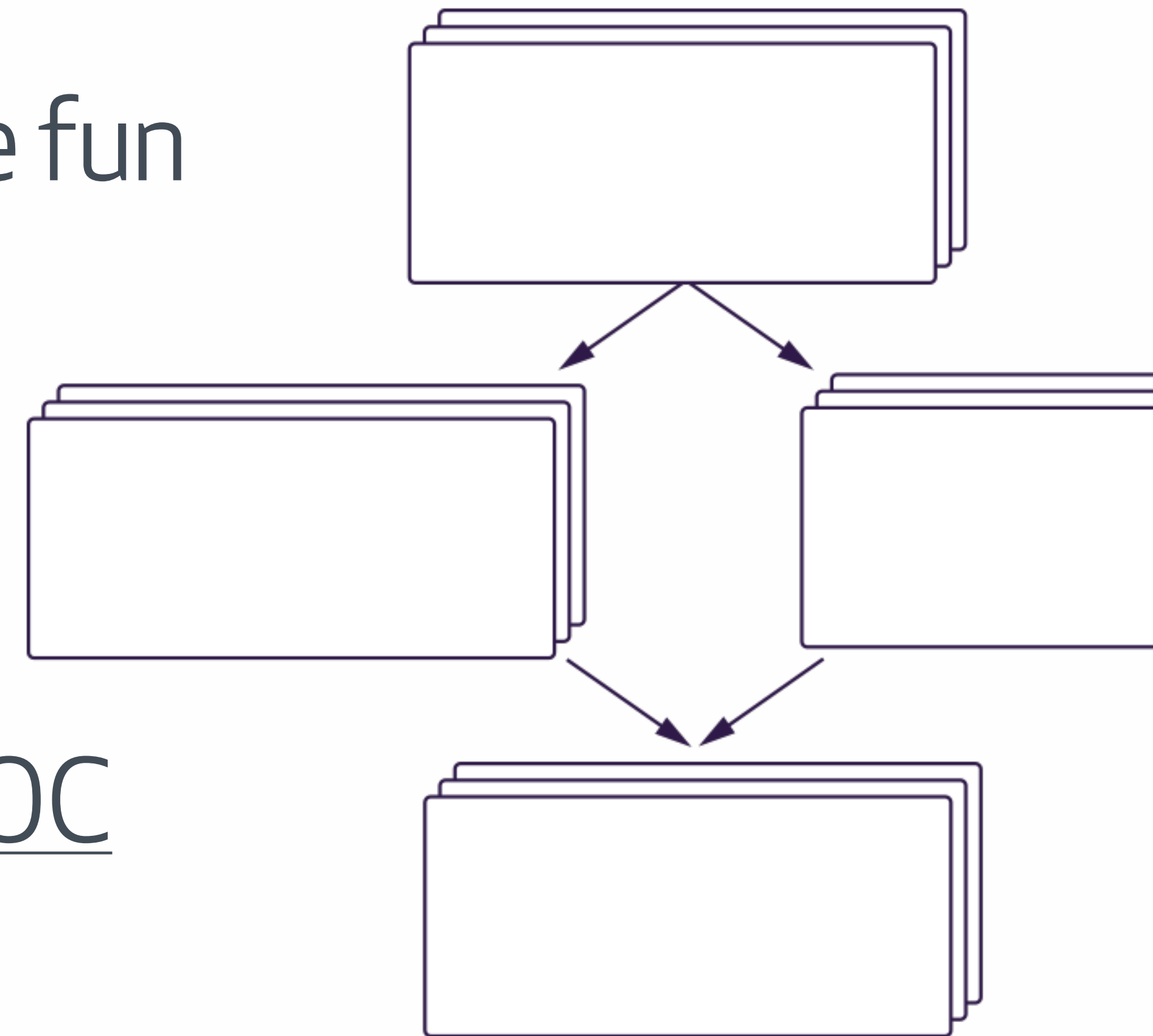
# Fission Workflows

- Workflows are a sequence of inter-dependent **functions**
- **Triggered** like normal functions by a Controller
- Backed by NATS Messaging system (pub-sub, persistent)
- Orchestrated by a (stateless) Scheduler
  - State is re-constructed from **events** (reactive)



# Benefits of Fission Workflows

- 🗝️ Enable custom, non-linear workflows on GHE!
- 🎢 Safe: we create guardrails, you have fun
- 🚢 Ideal for rapid iterations
- 💵 Virtually zero maintenance
- ✓ As already demonstrated by Lee's POC



# What about Probot?



# ReflImpl for GitHub Apps

- NodeJS only
- No workflow model
- Deployment is manual with no HA/DR
- Stateful services are hard to implement
- Express wrapper to Function which is Fission OOTB



OK, so...? 🙄



# Let's take this a step further

- What if...anyone could create **integrations**?
- What if...anyone could easily **create** workflows?
- What if...anyone could **publish** their workflows?
- What if...partners could **assemble** and **reuse** blueprints?





# What if we took an “applet” approach?

- Powered by Fission workflows
- With support for custom integrations
- Subscribe to events
- Can define payload templates
- Define internal logic to handle complex point-to-point comms



Let's visualise all  
of that.



# The case for GitHub Applets

"As a **devops eng** working for one of GitHub **partners**,  
I would like to **easily** create applets  
To deliver **highly specialised** solutions  
to our customers **effortlessly**"

1. Spawned by **triggers**
2. Triggers = **Events**  
(webhooks + Fission Events)
3. Defined via **integrations**
4. **Custom** Payload

## New Applet

if

▲

Trigger

Every Applet starts with a trigger.

filter

▼

Add filter code

then

○

Add a new action

Title

0/100

1. Actions defined by **integrations**
2. Custom integrations (e.g. a store)
3. Official GitHub action packs
4. Reusable & **composable**
5. Configurable

The screenshot displays the IFTTT interface for creating a new applet. On the left, a vertical timeline shows two steps, both labeled "then". The first step is currently selected. To the right of the timeline, there are three main sections:

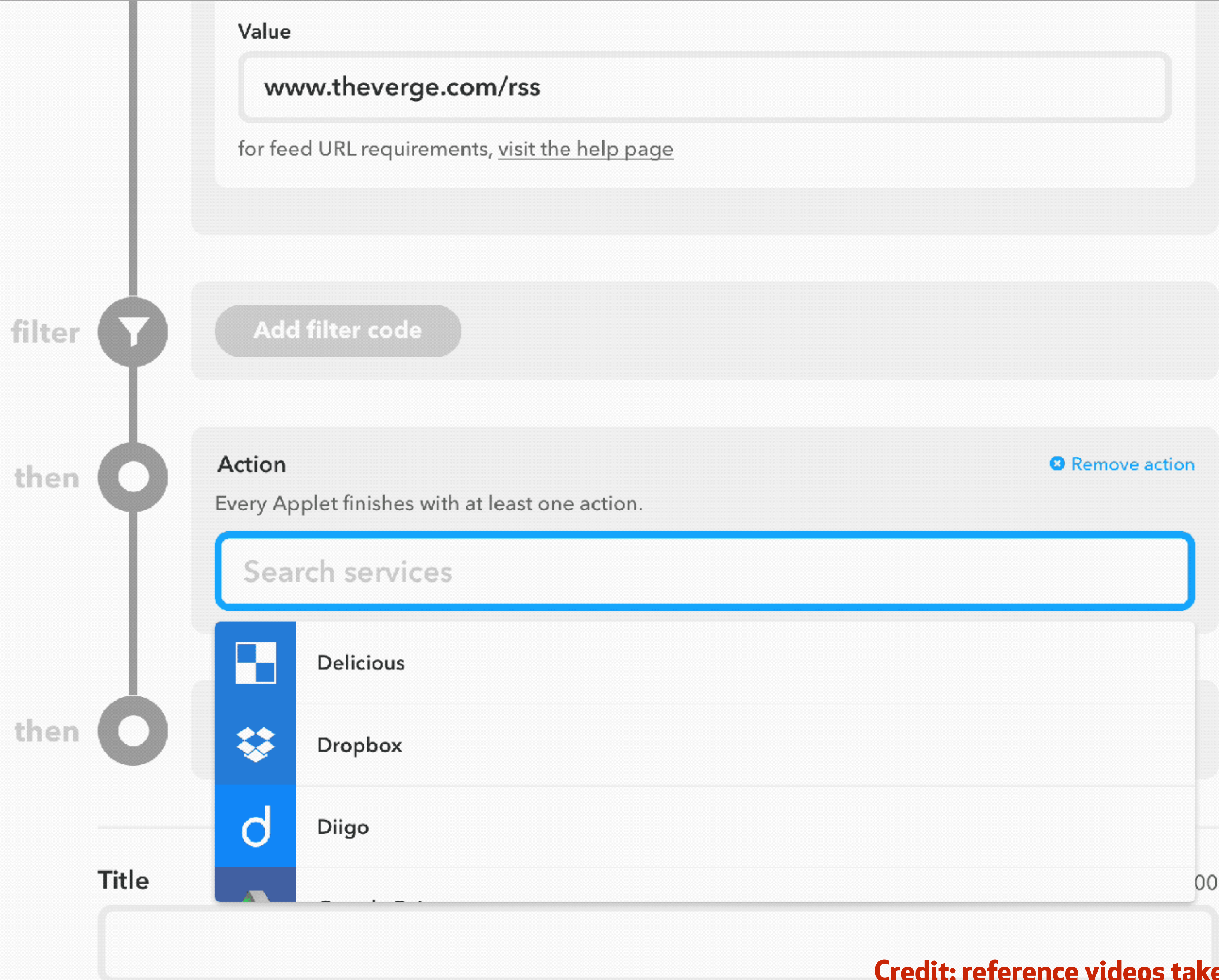
- Value**: A text input field containing "EntryUrl" and a blue button labeled "+ Ingredient".
- Action**: A section with a "Remove action" link. It contains a search bar labeled "Search services" and a list of services: Twitter (blue icon), SMS (green icon), and Email (blue icon). Below the list is a "Title" input field with a character count of "00".
- Description**: A text input field with a character count of "0/500".

Below the "Title" field, there is a note: "Use title case capitalization – no period required."



**Credit: reference videos taken from IFTTT**





**Credit: reference videos taken from IFTTT**

Use title case capitalization – no period required.

# Replacement for GitHub Services?

<https://developer.github.com/changes/2018-04-25-github-services-deprecation/>



# How cool would that be?

Imagine the possibilities...





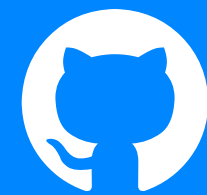
   **Time for a random “Crazy Eights” round!**   



**When a PR is merged  
and the target branch is  
“production”  
run SNYK on the HEAD  
of the branch and store  
the report on  
Auditology.**

by Kiratech S.p.A

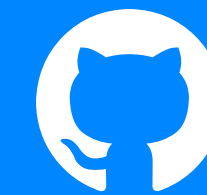
Security Auditing ...



**Map your JIRA  
workflows to GitHub and  
collect Team metrics on  
an Organisation-wide  
dashboard on Amplitude**

by Amazic GbV

Security Alerting ...



**When a merge to “master”  
occurs, run XL Release to  
deploy to staging and call the  
GH Deployment API,  
otherwise deploy with XL  
Deploy to Test and run  
[cypress.io](https://cypress.io) against the  
changes and call the checks  
API where there are errors**

by XebiaLabs

Ideas Brainstorming

# Demo



# Possible Next Steps



# Things we should POC

- Do It Yourself Continuous Integration
- JIRA Broker for Enterprise
- Probot 000 and Stale
- Others...

