A FORTUNATE SERIES OF

CLOUDEVENTS

HELLO, I AM IAN!

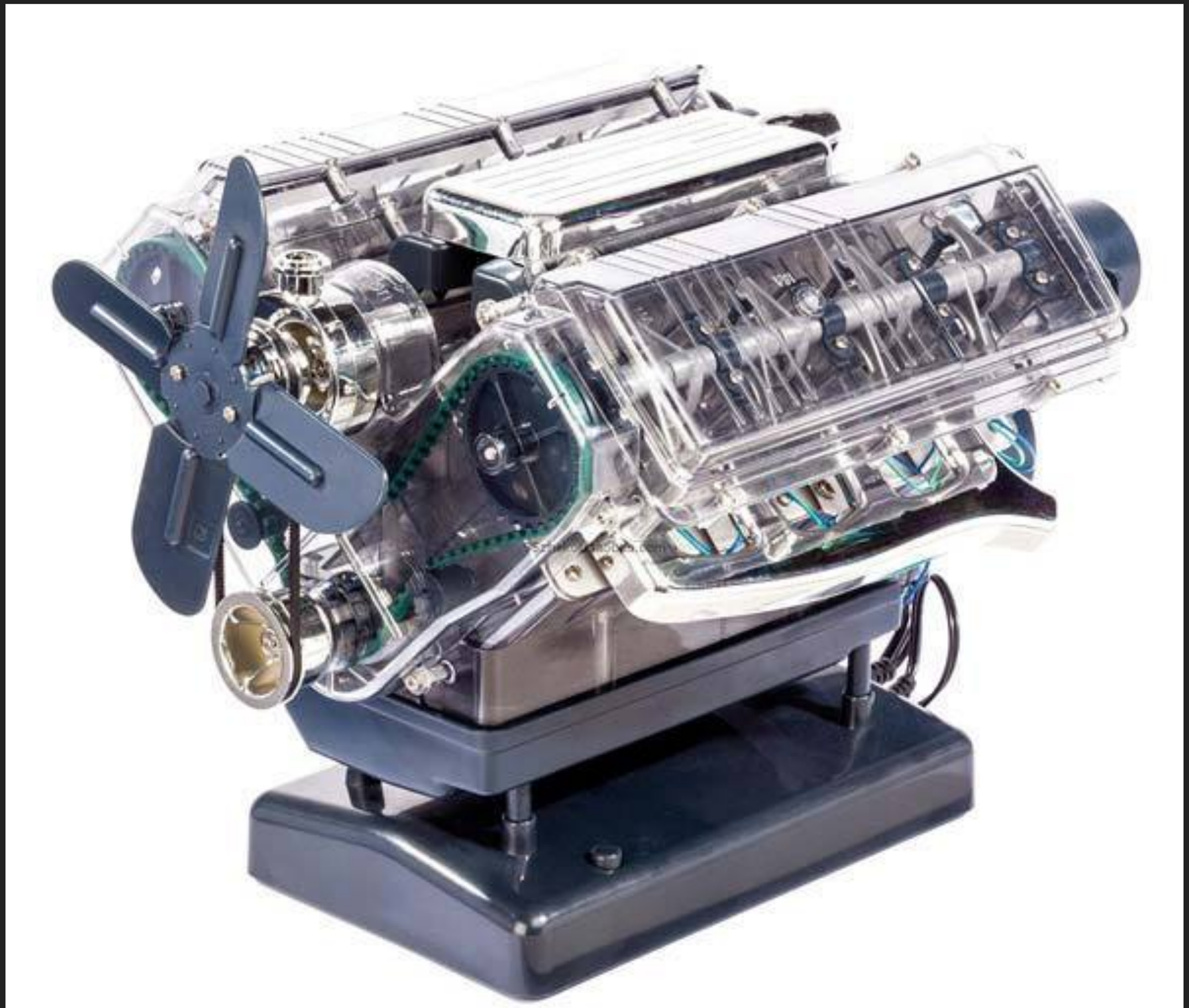
- I live in Upstate NY
- Work at Salesforce, hack on Heroku
- Started my tech journey as Linux SysAdmin
- Most recently, Tekton Triggers!
- Thank you!

I TEND TO THINK ABOUT...

What are the best ways to introduce team members to new ideas or technology?

How can we best share deep technical info?

How can we lower/remove barriers to try out new tech?



KUBERNETES LEARNING ENVIRONMENTS

- Operating and observing systems together inspires interesting conversations.
- Self-contained, fully-functional, zero-config educational environments.
- Kubernetes provides an ideal platform for learning environments like this!

SHALL WE DEMO A CLOUDEVENT LEARNING ENVIRONMENT?

WHY INCLUDE CLOUDEVENTS?

- Connecting Services is hard
- Interoperability!
- Routing Options!
- I see lots of questions about the project in various slacks
  - The confusing aspect of CloudEvents seems to be *where* it fits

WHAT IS A CLOUDEVENT?

- A spec that describes event data in common formats
- Sane Event routing can be achieved
- Your app logic can be slimmed down, as well
- Framework does not touch business logic / payload

SPEC

- **Spec Version**
- **Type**
- **Source**
- **ID**
- ContentType
- Schema
- Extensions
  - Your apps customs sauce
- Subject
- Payload

TRANSPORTS

CloudEvents also define how these events need to be serialized and what their wire protocol is. Interoperability!

- HTTP
- AMQP
- JSON
- MORE

For the purposes of our demo, we will be sticking with http

THE DIFFICULT PARTS

- Event ordering
- Replaying Events
- Getting new sources

DEDICATED SDKS

C#

Go

Java

JS

Python

Ruby

CLOUDEVENTS + ROUTING

The metadata CloudEvents adds to the event envelope becomes powerful when used as a means of routing messages around the mesh

The languages SDK allows developers of those languages to get started emitting CloudEvents

Knative Eventing allows us to route to Services based on CloudEvent data

We are going to take that awful routing code out of our apps and projects!

USE CASES

- CI/CD Workflows
- Cron based functions
- Kubernetes event jobs
- And more!

EVENTING

Broker

Triggers

ContainerSource

BROKERS

Introduced in v0.5 release

Brokers

Event Mesh between your event sources and your services that want to consume them

Cheap, easy event multiplexing

Events -> Broker Ingress -> Channel <-> Trigger -> Service

BROKER DETAILS

Pods

Filter

Runs both the dispatcher and broker in one binary

Receives CloudEvents, checks for Triggers subscribed to this particular message type

Ingress

Intake and inspect all events that enter the Broker.

Channels

Ingress - where you will be sending messages

trigger- where interested services will be listening

KNATIVE TRIGGERS

Triggers

Triggers act as sort of a routing layer, determining which brokers events should be subscribed to

Provides Filters, which allow events to be filtered on CloudEvent metadata

EXAMPLE TRIGGER FILTER

```yaml
apiVersion: eventing.knative.dev/v1alpha1
kind: Trigger
metadata:
  name: trigger
spec:
  filter:
    attributes:
      subject: dave
      thisextension: value
  subscriber:
    ref:
      apiVersion: serving.knative.dev/v1alpha1
      kind: Service
      name: radicalservice2000
```

EXAMPLE SERVICE – AUTOMATED CONVERSATIONS

A tiny **distributed system** that allows AI actors to have a conversation!

Actors only output what they *hear*

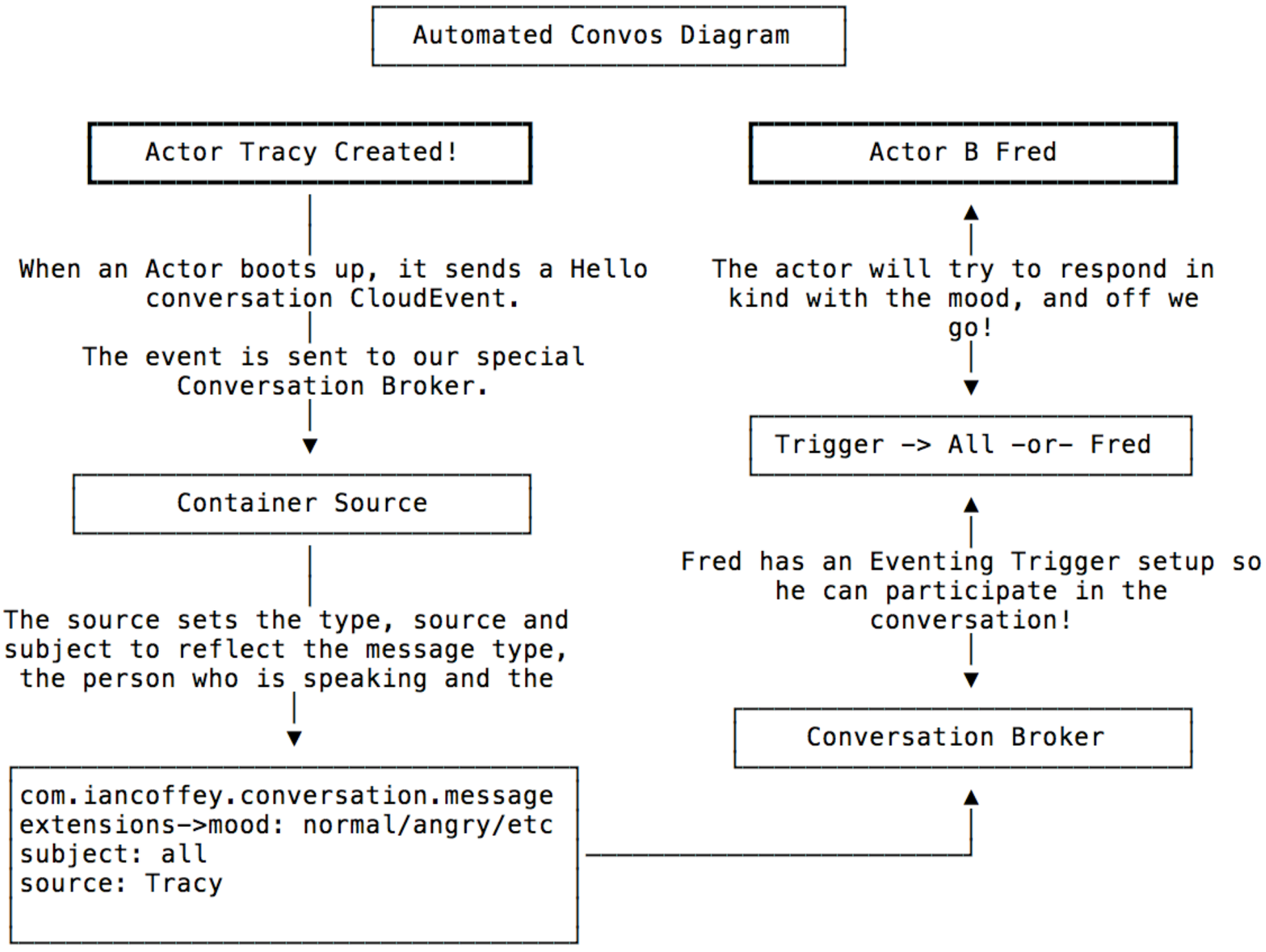
This conversation is going to be powered by these components

- CloudEvents: Messages
- Brokers: Conversation
- Triggers: Interest in a topic
- Pods: Actors
- ContainerSource: Speaking

LETS START THE SYSTEM

*it will take a hot minute for cluster.local dns to settle so the actor to start chatting

DIAGRAM TIME



Lets look at the event flow for a conversation message

HOW IS OUR CONVERSATION LOOKING?

Lets run our listen and events commands to reveal what the events look like on the wire!

WHAT IS HAPPENING IN OUR NAMESPACE?

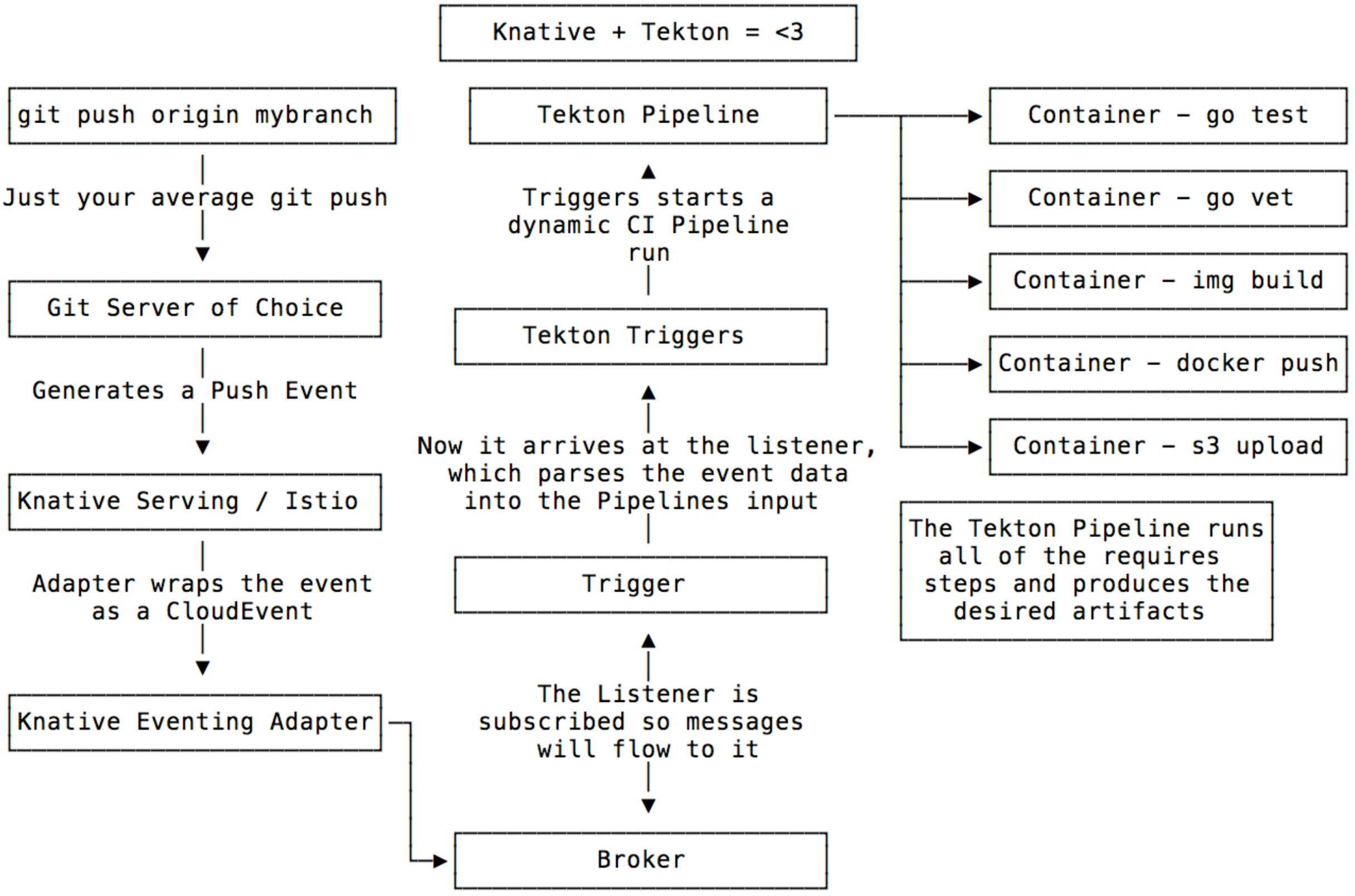
MAGIC EVENT

These actors become distracted when they see a shiny object

How would we send a new event type to all these fine folks?

The event type is com.iancoffey.conversation.distracted

WHAT ELSE CAN WE DO?



THANK YOU!