Event Logging story

Disclaimer : I am not a Fluent Advocate

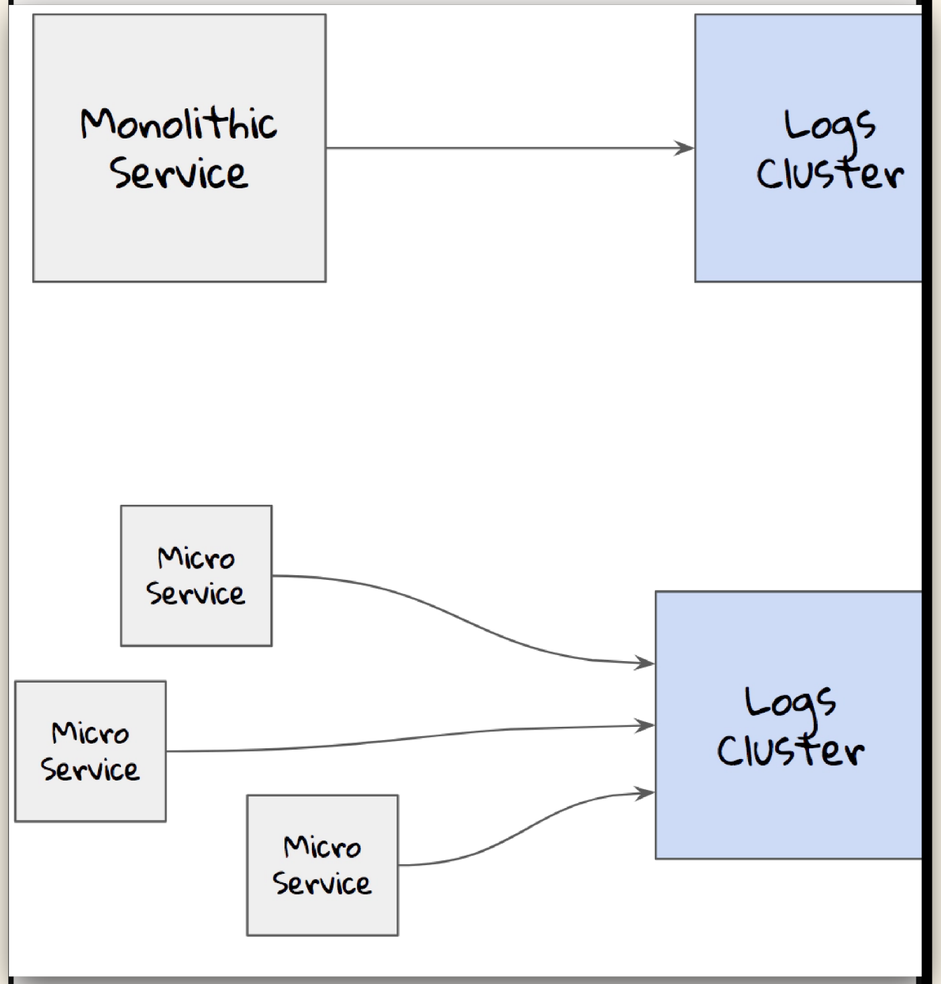
Once upon a time

There is a company who wants to adopt SRE practices.

Logging - Tracing - Metrics **came along** to the picture

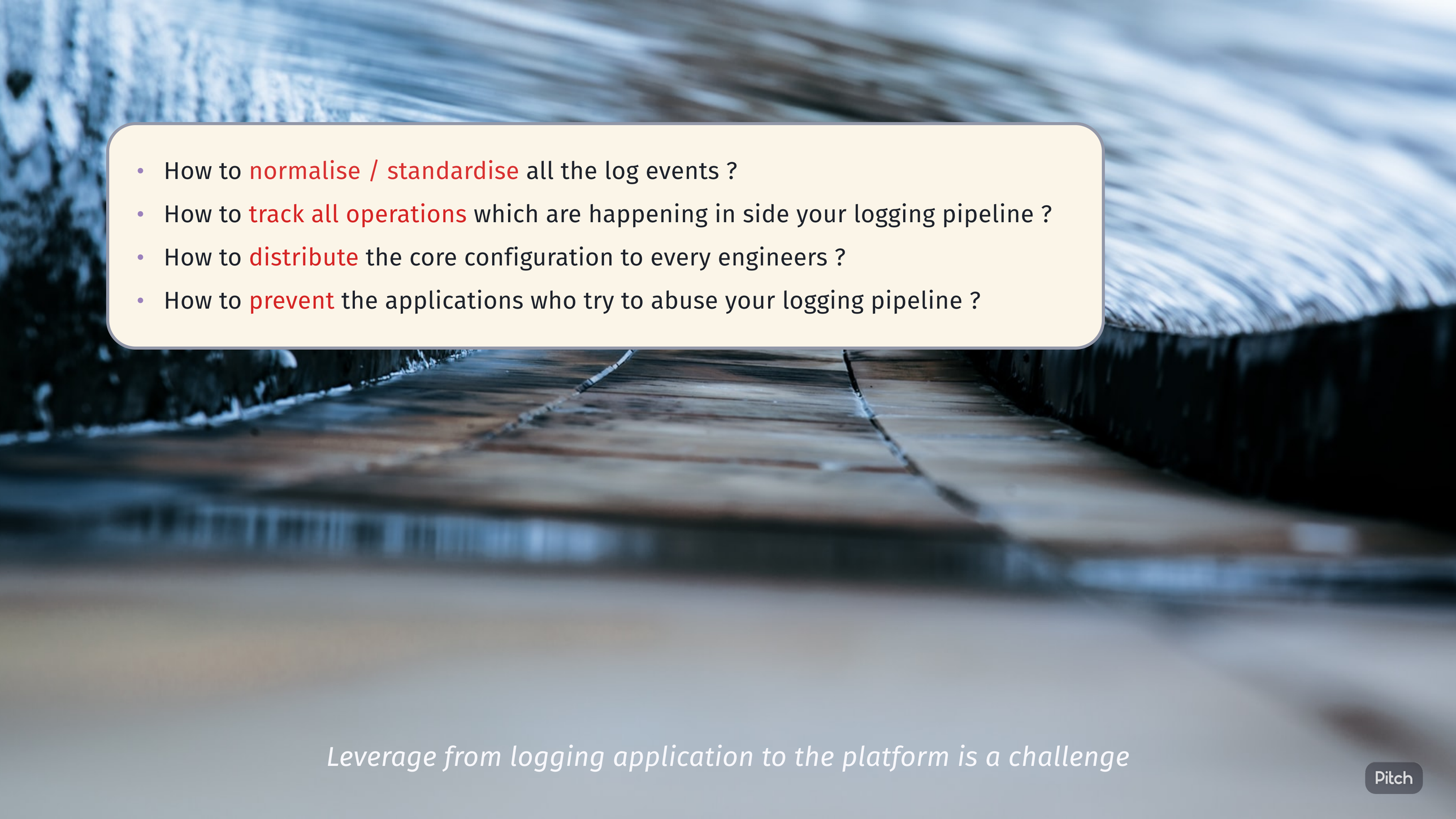
Good news: their architecture is quite simple

Bad news: the simplicity is not always



And it's broken

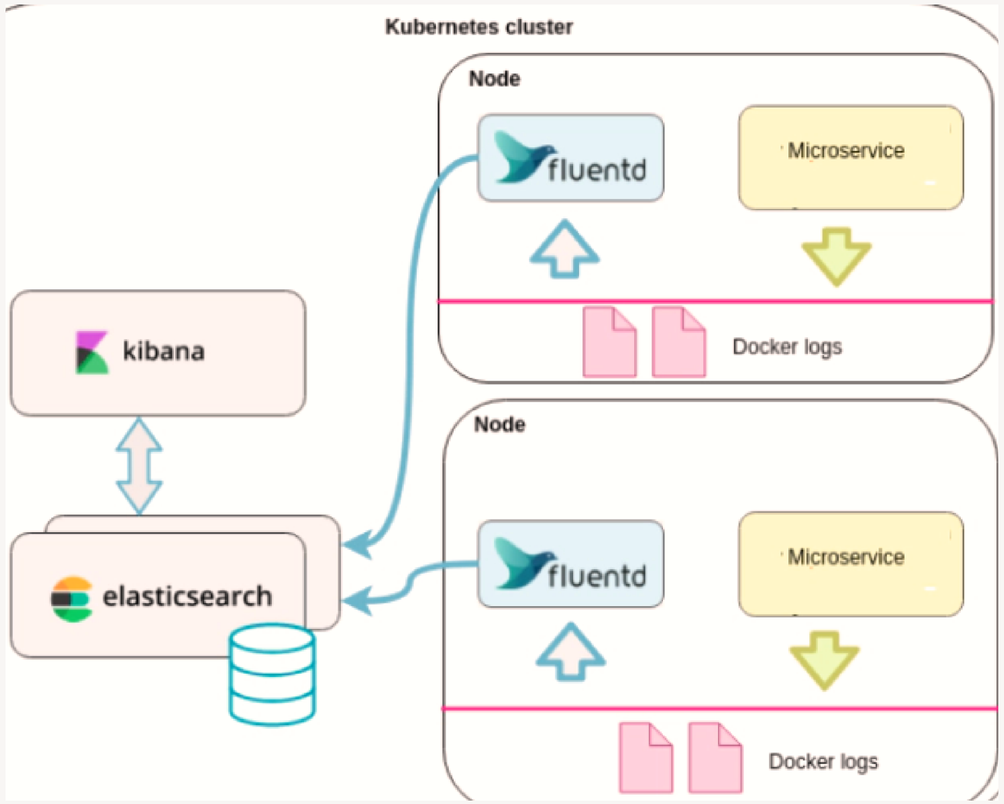
- It doesn't scale well
- So many unmeaningful events collected
- No one understands what is going on Logging Pipeline
- The rate of indexing failures are keep growing



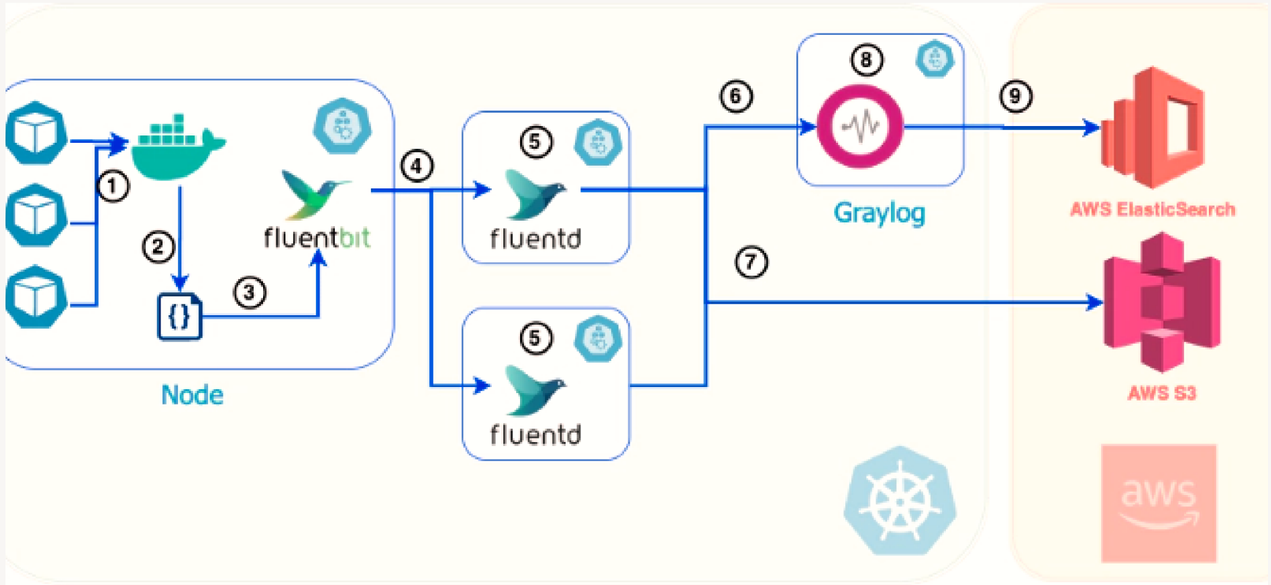
- How to normalise / standardise all the log events ?
- How to track all operations which are happening in side your logging pipeline ?
- How to distribute the core configuration to every engineers ?
- How to prevent the applications who try to abuse your logging pipeline ?

Leverage from logging application to the platform is a challenge

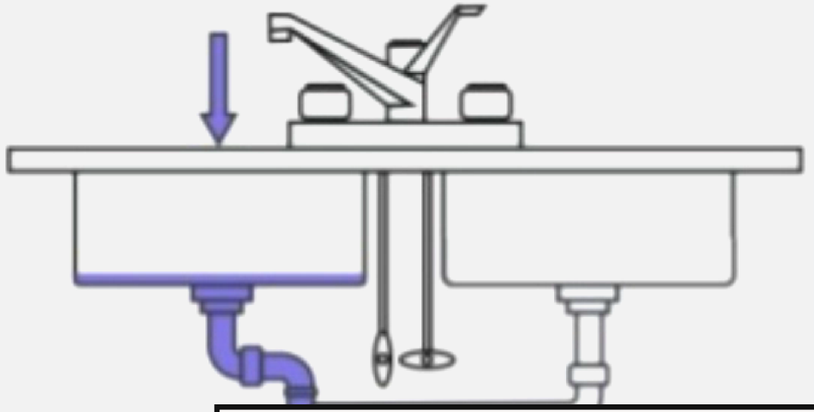
Disclaimer : This is not a silver bullet !

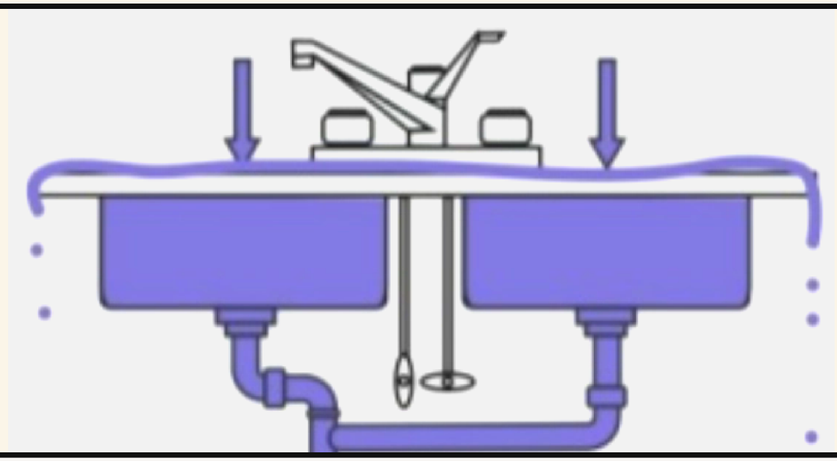


This is the old



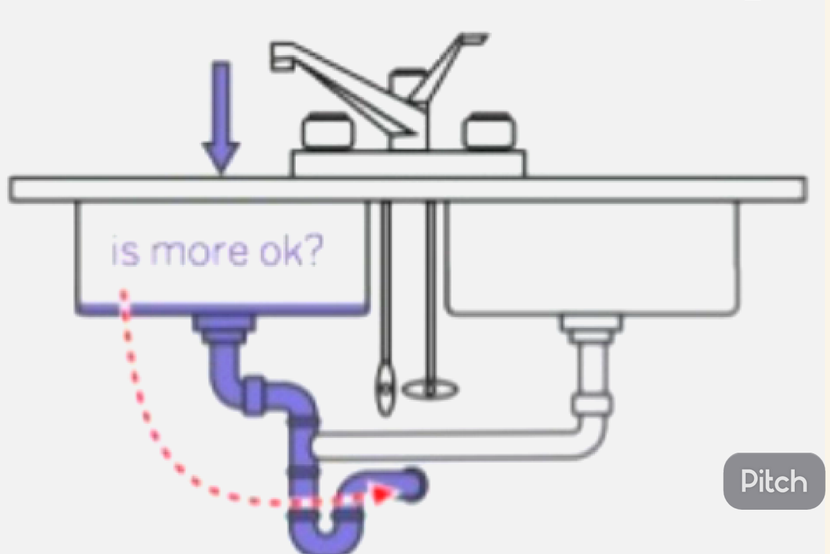
This is the new





BackPressure mechanism

The main reason to use FluentBit is BackPressure mechanism which FluentD itself didn't have.



The sound of silence

Throttling

For the Production

INFO 60 msg/s

DEBUG 10 msg/60s

For the Staging

WARN 120 msg/s

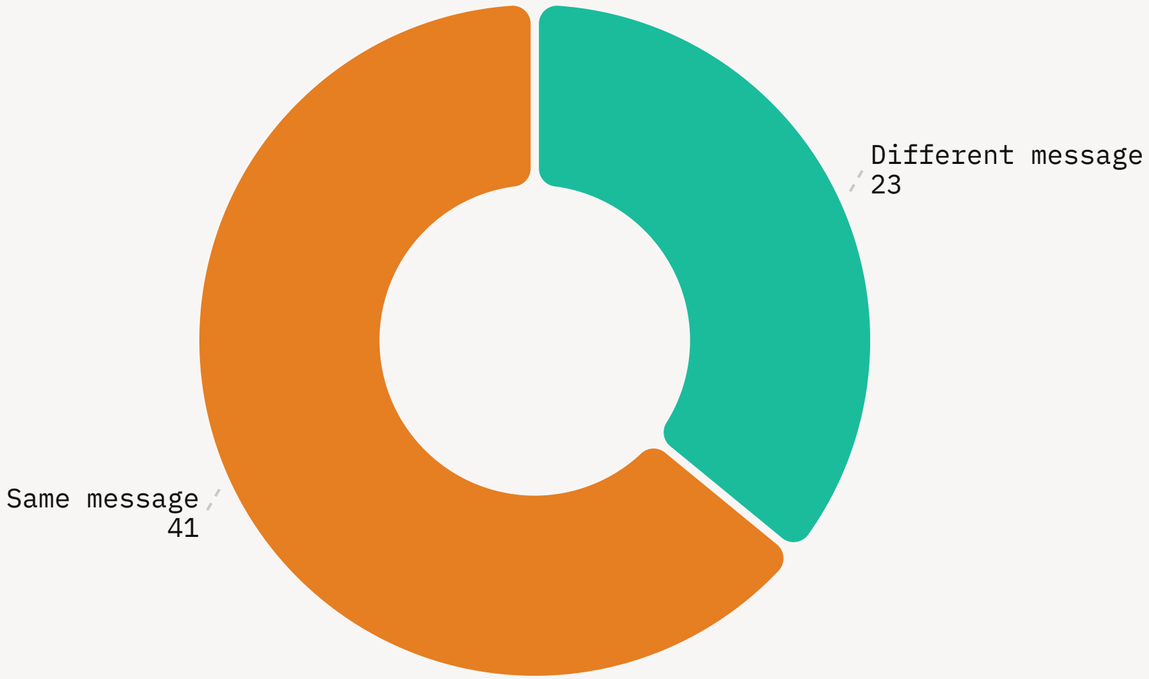
TRACE 50 msg/60s

Testing cluster

ERROR 1000 msg/s

INFO 30 msg/s

Sampling



Mechanism

Suppress same messages

```
<match foo.**>
  @type           suppress
  interval        10
  num             2
  attr_keys       host,message
</match>
```

```
  2020-11-22T11:22:33 foo.info
{"id":1,"host":"web01","message":"error!!"}
  2020-11-22T11:22:34 foo.info
{"id":2,"host":"web01","message":"error!!"}
* 2020-11-22T11:22:35 foo.info
{"id":3,"host":"web01","message":"error!!"}
* 2020-11-22T11:22:36 foo.info
{"id":4,"host":"web01","message":"error!!"}
  2020-11-22T11:22:45 foo.info
{"id":9,"host":"web01","message":"error!!"}
```

TRACKING THE MESSAGE SIZE TO GET MORE VISIBILITY on STORAGE

Integrate Flow Counter & Prometheus plugin to achieve this

- *The weakness thing is the strongest point*

FluentD Multiple Workers is ready to use

```
<system>
   workers 10
</system>
```

Distributed configuration

FluentD introduces include syntax

```
<system>
@include teamA.conf
@include teamB.conf
@include teamC.conf
</system>
```

Enable FluentD RPC

```
<system>
rpc_endpoint
127.0.0.1:24444
</system>

$ curl
http://127.0.0.1:24444/
api/plugins.flushBuffer
s
{"ok":true}
```

Utilise ConfigMap & MountPoint

```
kubectl get cm
NAME                    DATA  AGE
fluentd-teamA.conf      1     8d
fluentd-teamB.conf      1     8d
fluentd-teamC.conf      1     8d
```

Engineers now have full visibility on the logging pipeline

Log fields standardisation

Name	Format	Example	Description
Customer_Id	String	Alice-120	🦥 Monkey
Order_Id	Integer	12385910	🦏 Rhino
Trace_Id	Numeric	9292.14	🦩 Flamingo
Upstream_Host	String	http://checkout.teama.svc.cluster.local	🦄 Unicorn

Document all fields info to allow developers get references easier.

What if they don't follow ?

{"type":"mapper_parsing_exception","reason":"failed to parse field [duration] of type [float] in document with id 'da519231-1aaf-11eb-bb08-b22e566b37e4'","caused_by":{"type":"number_format_exception","reason":"For input string: \"3.196501964s\""}}

ElasticSearch well known issue

FluentBit filtering by Lua

The filter will check each log field to see if it matches the data type in our list. If it matches, it will leave it as is.
If it does not match, it will either just force/cast the value to a string value, or in case of a required numeric field it will try to parse it to a number

But why GrayLog ?

Authorisation

To grant explicit permission for who wants to do what

The abstraction layer for ES

To help us manage indices - index & other noisy things from ElasticSearch

Observability from the UI

Easily narrow down the enduser's queries flow.

Manipulate data

To create the different pattern for what's exactly you want to show from the data.

SLO Vision

99.999% Queries should be returned properly

99.99% Log events indexed properly

From End User 's perspective

From Developer's perspective

patriotvn

t.me/geekhangout

talk.findgeek.me