Barito

Logging platform behind our SuperApp

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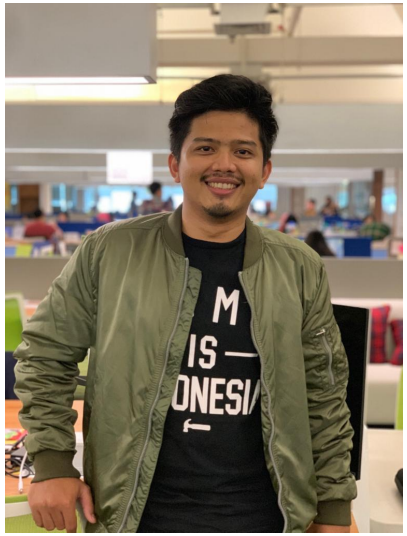

/ @fadlinurhasan

System Engineer at gojek

fadli.nurhasan@go-jek.com

SYSTEMS TEAM

Cloud Platform Stream

GOPAY SYSTEMS TEAM

Cloud Observability Stream

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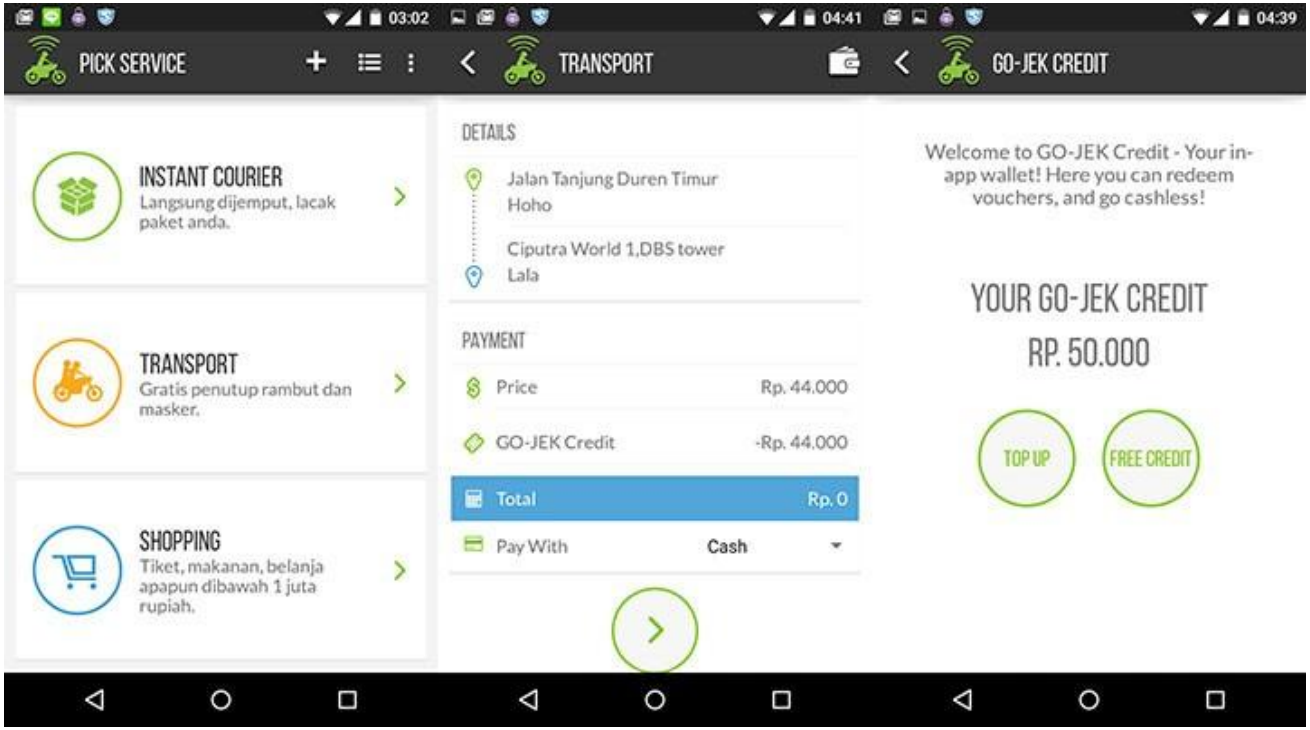

2015 - FIRST MOBILE APP

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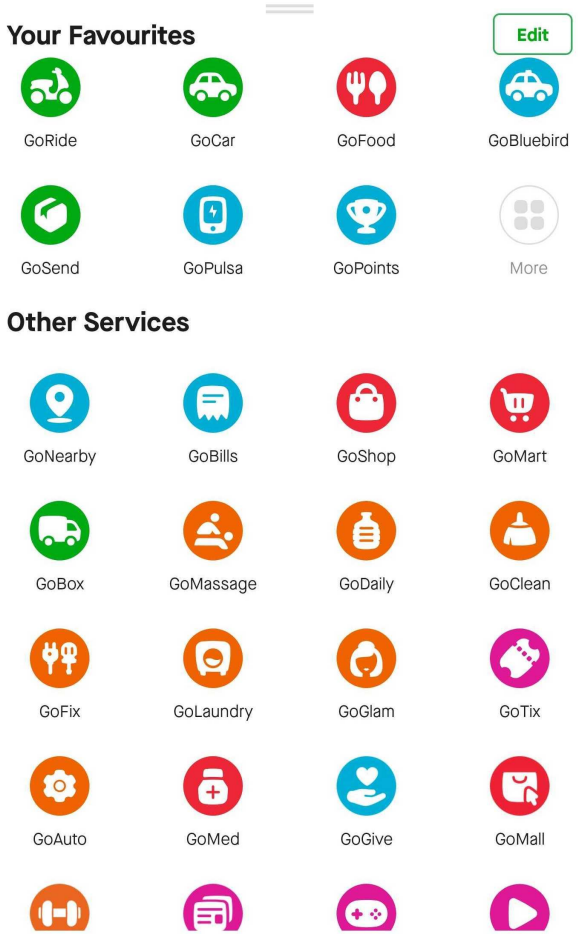

2019

250+ Engineers
20+ Products

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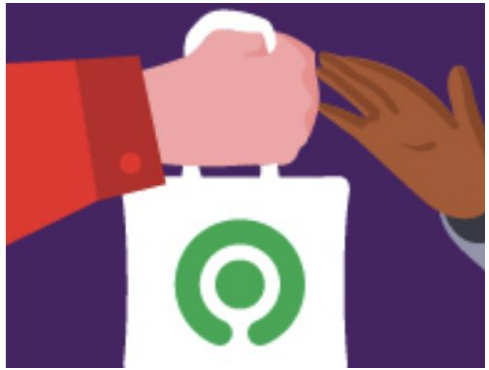
3 Million+

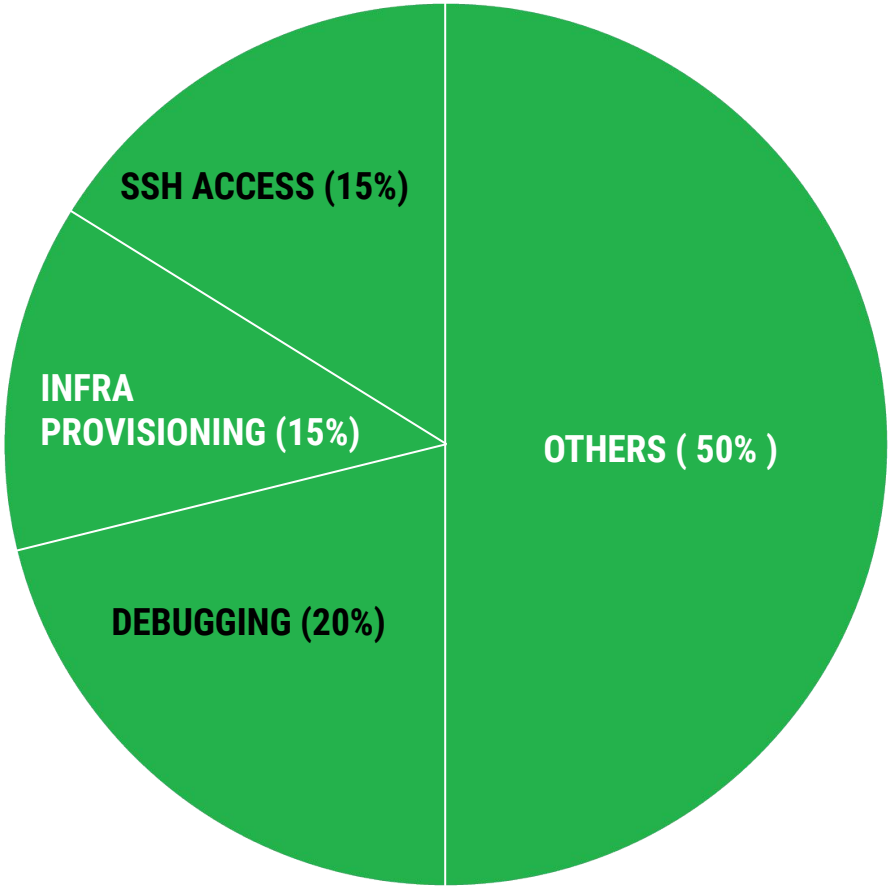
orders everyday

1100x

total order volume growth in 3 years



STATISTICS

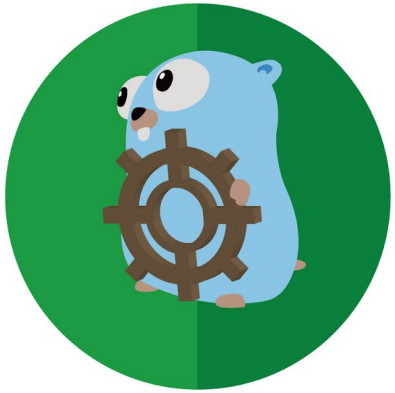


How we deal with those issues?

Infra Provisioning

INDONESIA OpenInfra Days

Proctor



build passing | go report A+ | GolangCI A+

Description

Proctor is a developer friendly automation orchestrator. It helps everyone use automation and contribute to it

https://github.com/gojek/proctor

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How about

DEBUGGING & SSH ACCESS?

COMMON PROBLEM

Related to logs

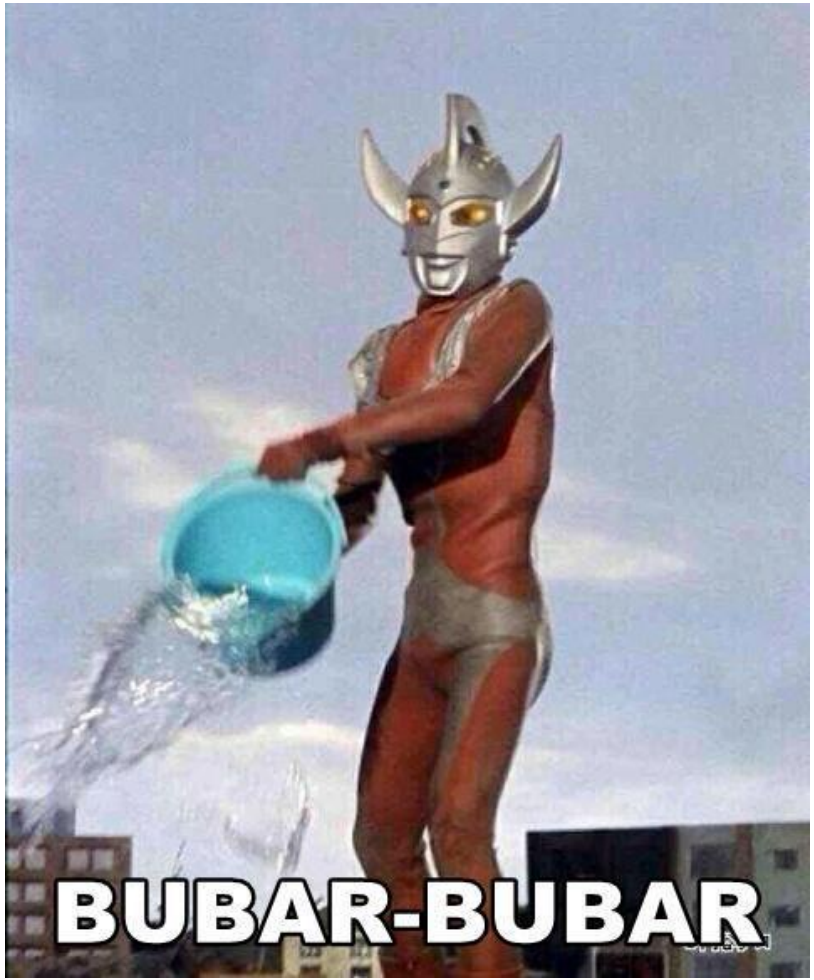
Scattered, unstandardized logging platform used

Or it’s **not use** any logging platform

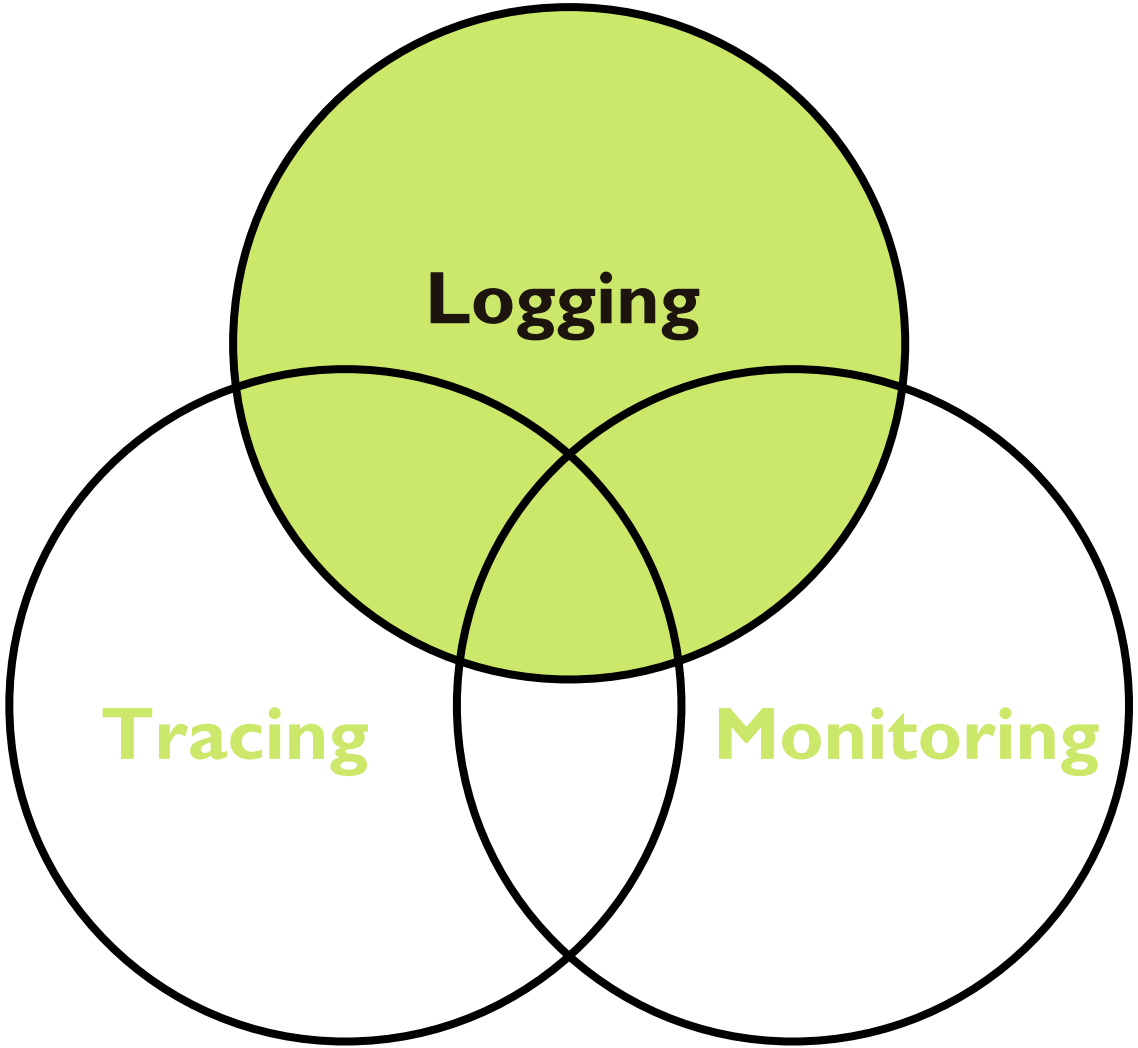
Need to **directly access** the machine

There are no logs (**already rotated**)

What if the services are on container?


BUBAR-BUBAR

Observability is **paramount** to achieve minimum MTTR



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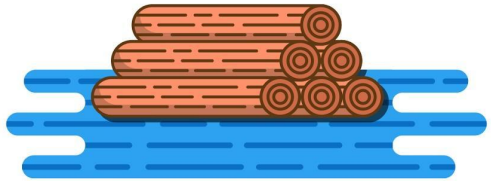

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CONSIDERATIONS

when building BARITO

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Setup & maintaining logging infra is a hassle

Managed solutions are costly and locked-in...

We have hybrid infrastructures, spanning across managed cloud services and our own datacenters

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Some of our services are highly regulated by law, we must manage the data ourselves

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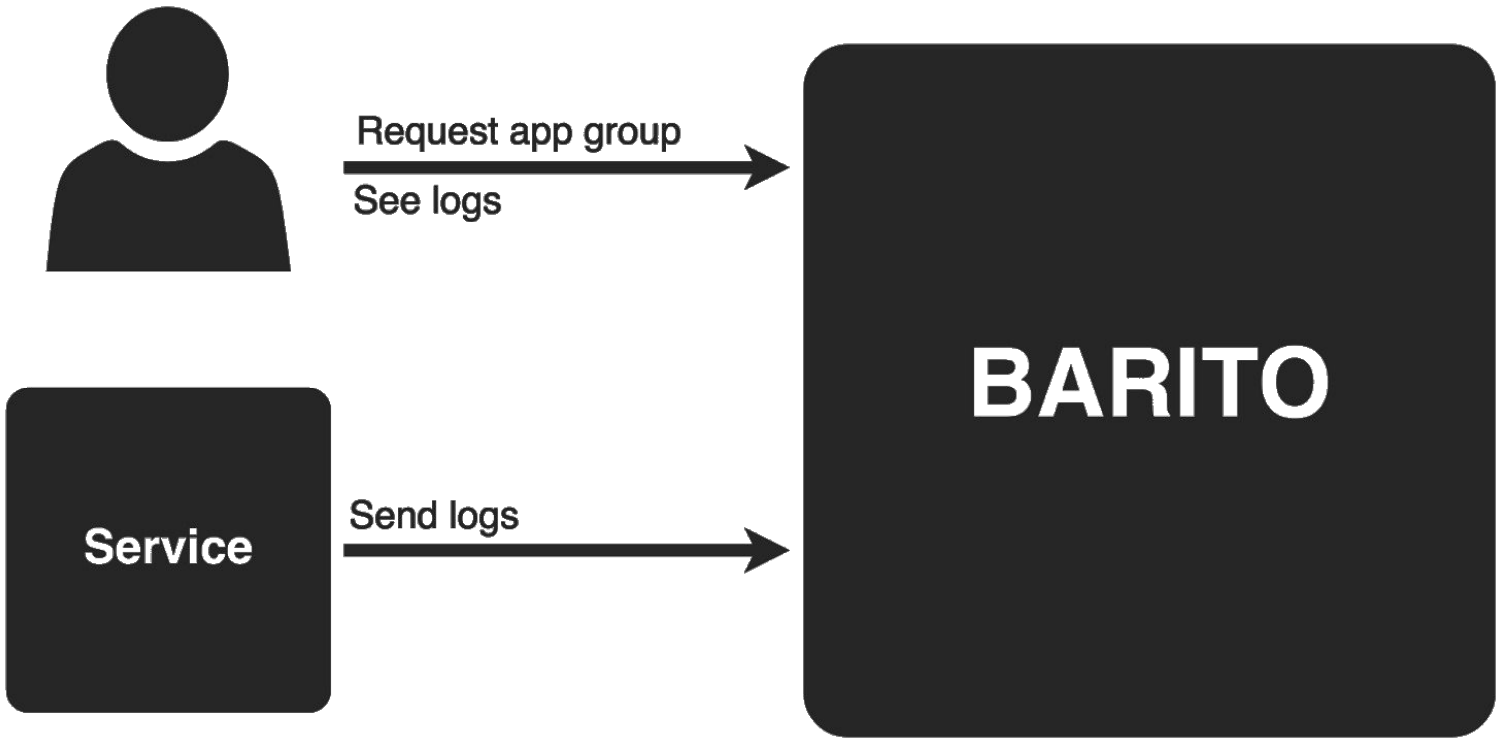
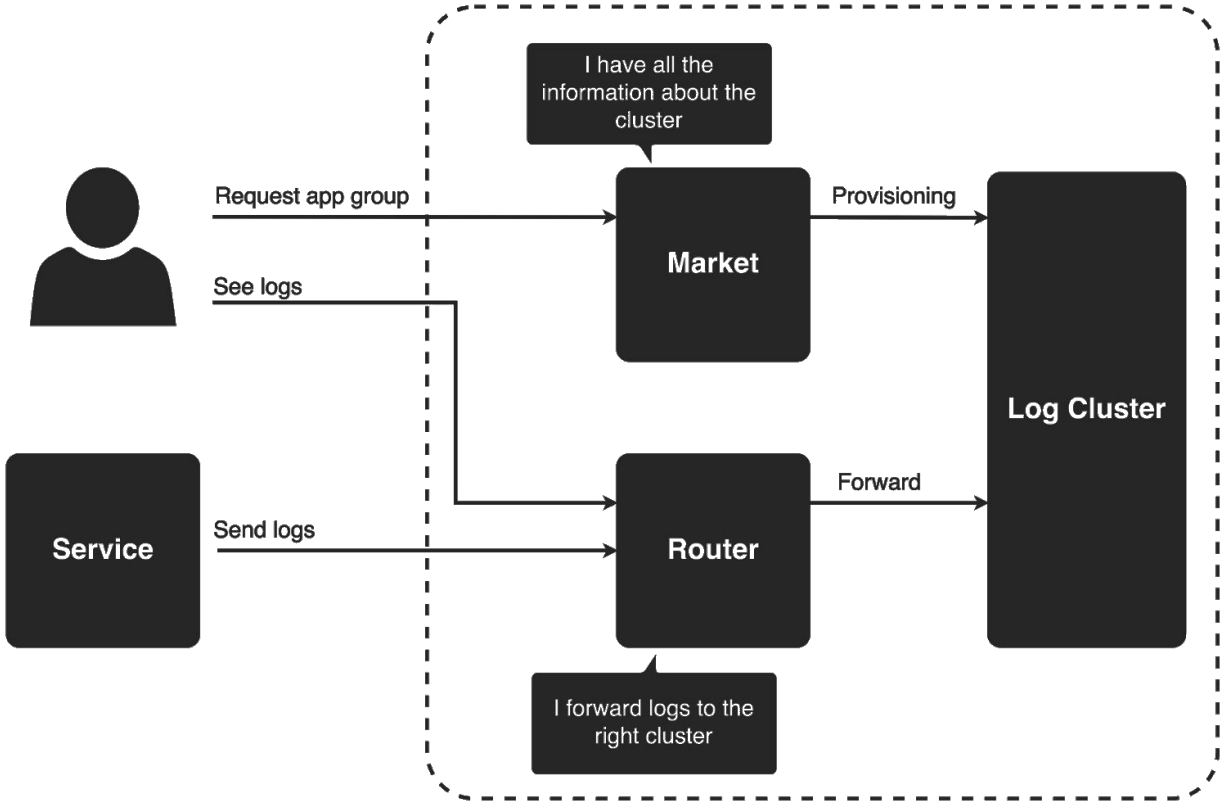
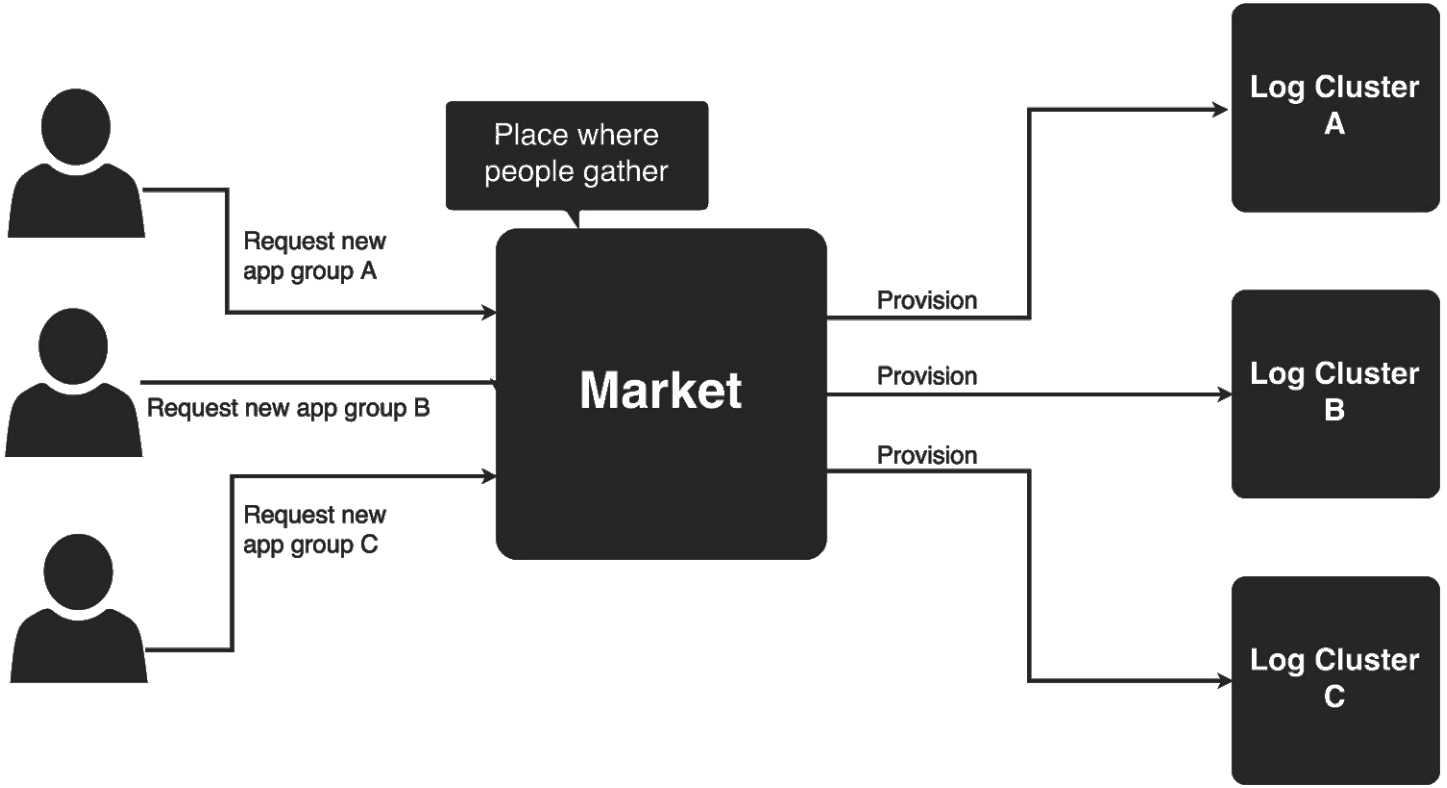
ARCHITECTURE


Request app group
See logs
BARITO
Service
Send logs


I have all the information about the cluster
Request app group
Provisioning
Market
See logs
Log Cluster
Service
Send logs
Router
Forward
I forward logs to the right cluster

REQUEST AN APP GROUP


Place where
people gather
Market
Request new
app group A
Request new app group B
Request new
app group C
Provision
Provision
Provision
Log Cluster
A
Log Cluster
B
Log Cluster
C

PATHFINDER

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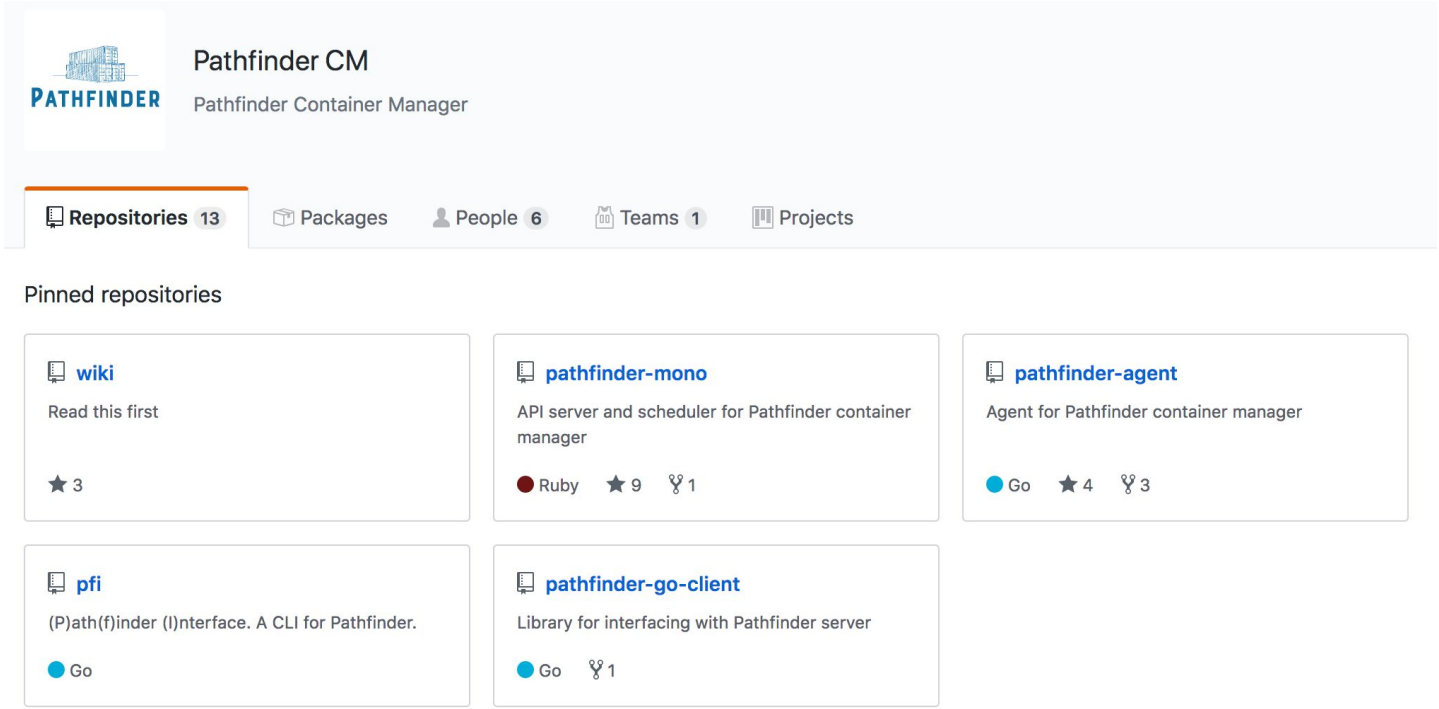

https://github.com/pathfinder-cm/

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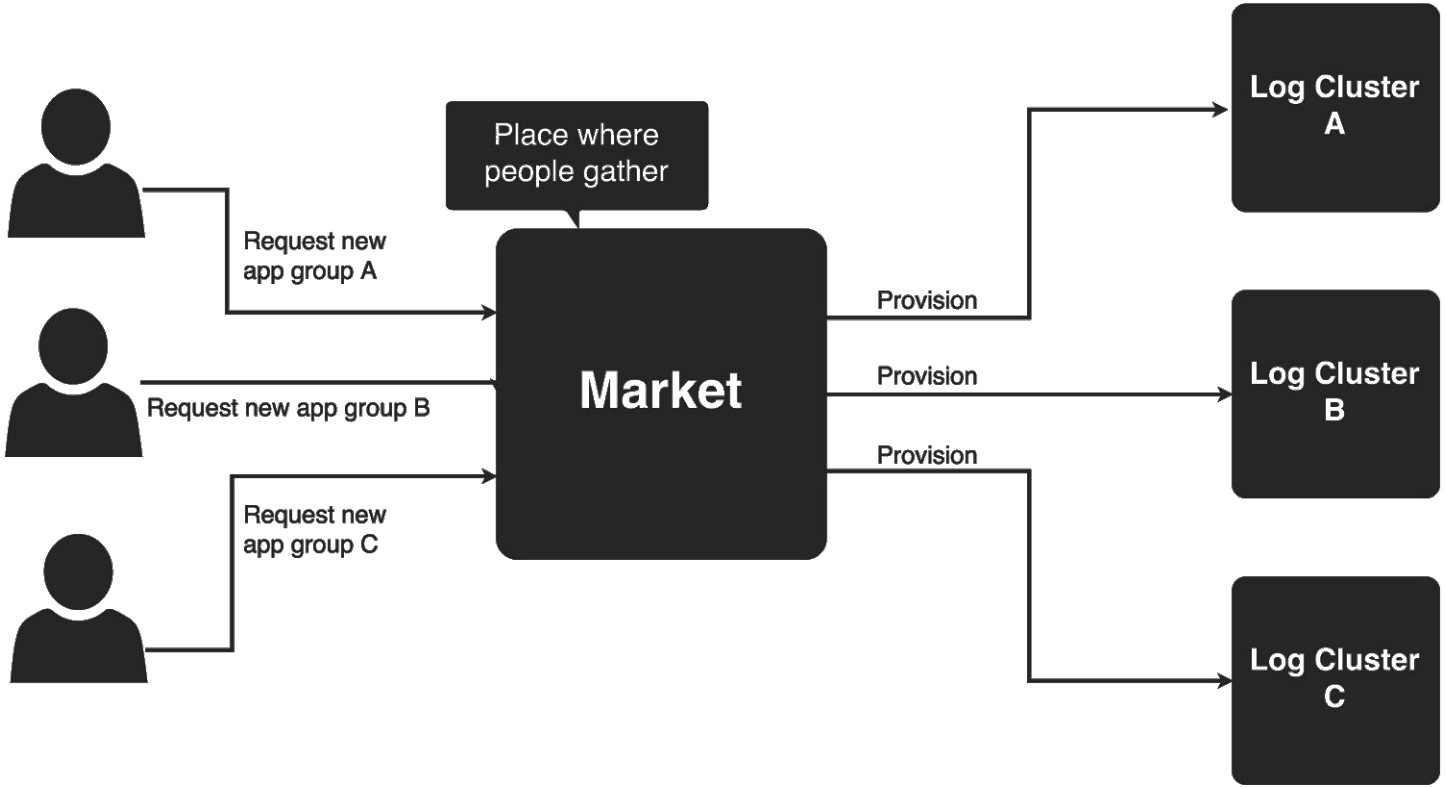
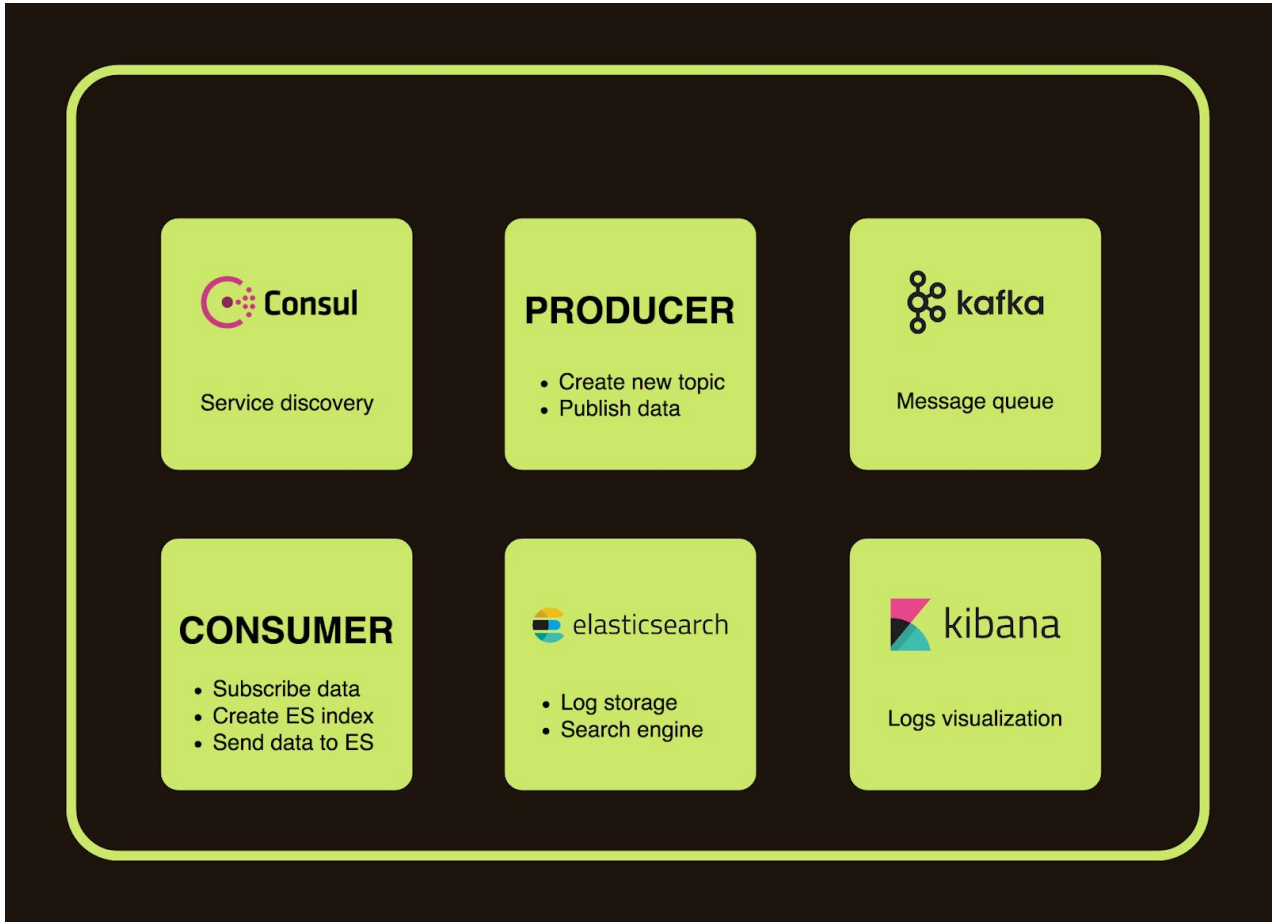
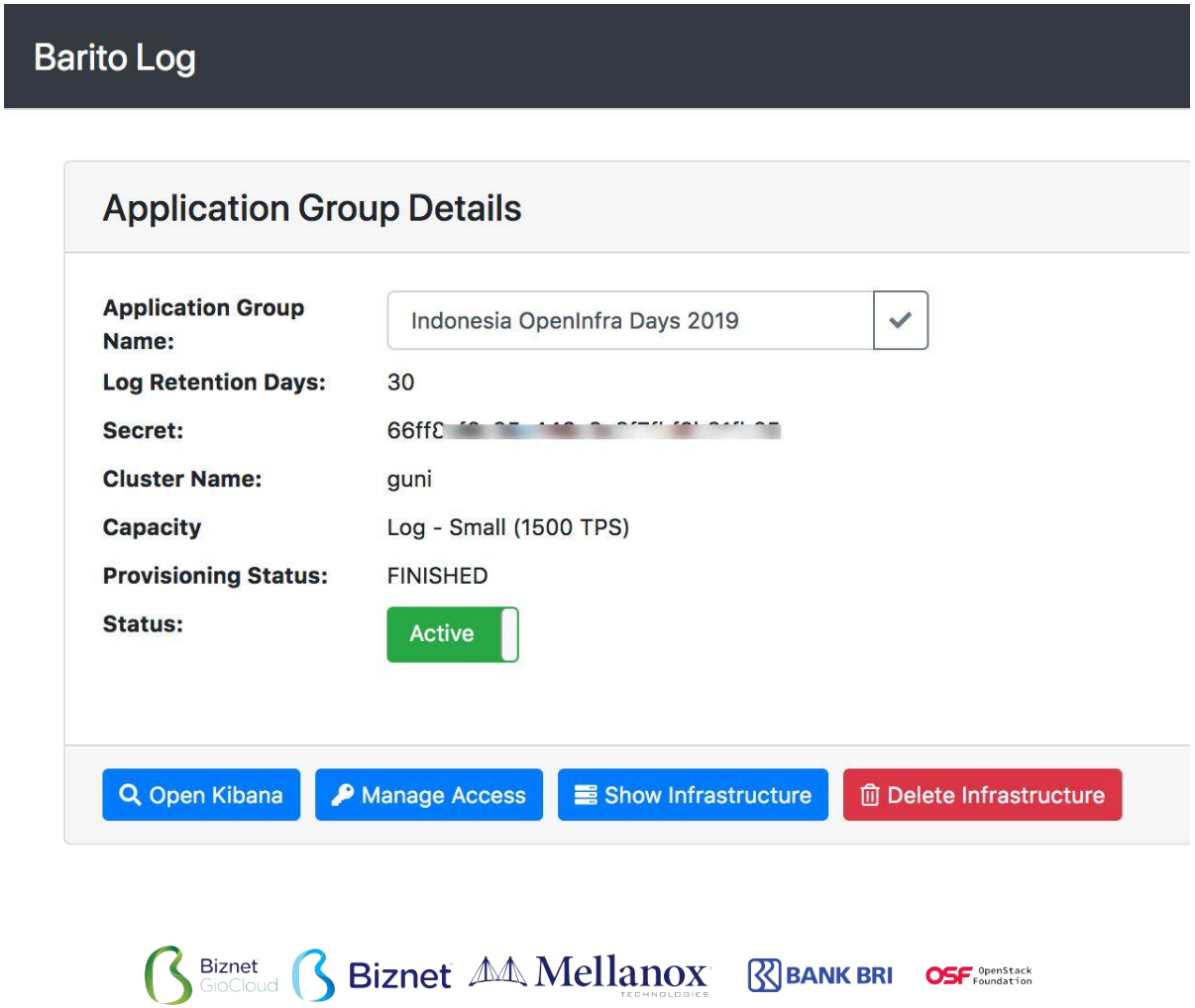

Place where
people gather
Market
Request new
app group A
Request new app group B
Request new
app group C
Provision
Provision
Provision
Log Cluster
A
Log Cluster
B
Log Cluster
C

LOG CLUSTER


Consul
Service discovery
PRODUCER
• Create new topic
• Publish data
kafka
Message queue
CONSUMER
• Subscribe data
• Create ES index
• Send data to ES
elasticsearch
• Log storage
• Search engine
kibana
Logs visualization


Barito Log
Application Group Details
Application Group Name:
Indonesia OpenInfra Days 2019
Log Retention Days:
30
Secret:
66ff
Cluster Name:
guni
Capacity
Log - Small (1500 TPS)
Provisioning Status:
FINISHED
Status:
Active
Open Kibana
Manage Access
Show Infrastructure
Delete Infrastructure

SEND THE LOGS

BARITO AGENT

+ CUSTOM PLUGIN

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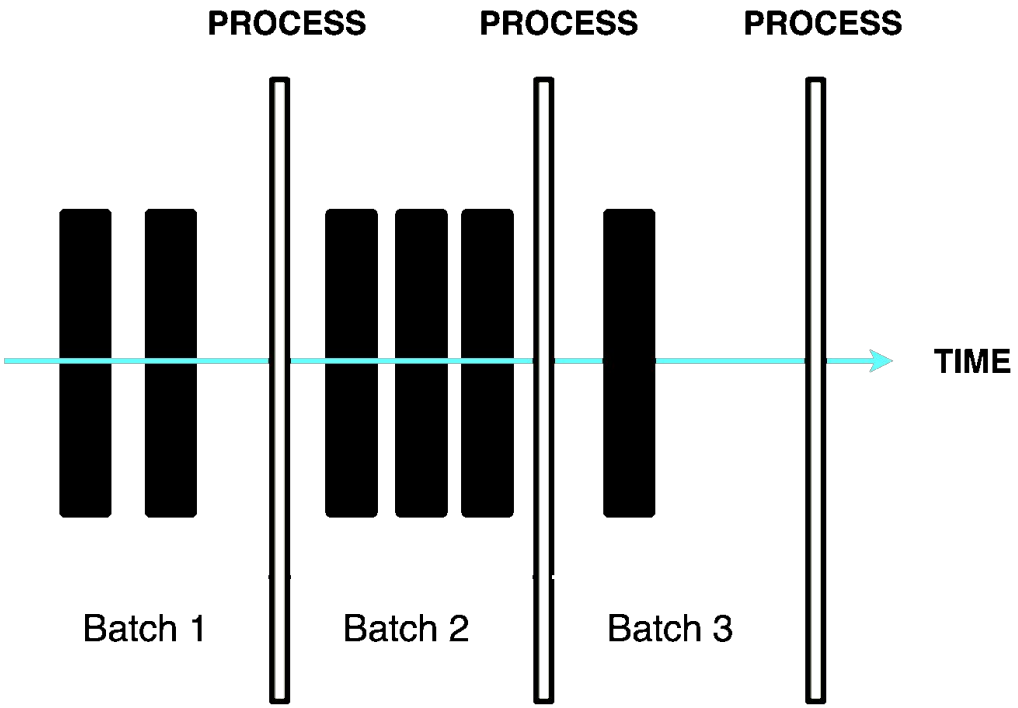
MICRO BATCHING



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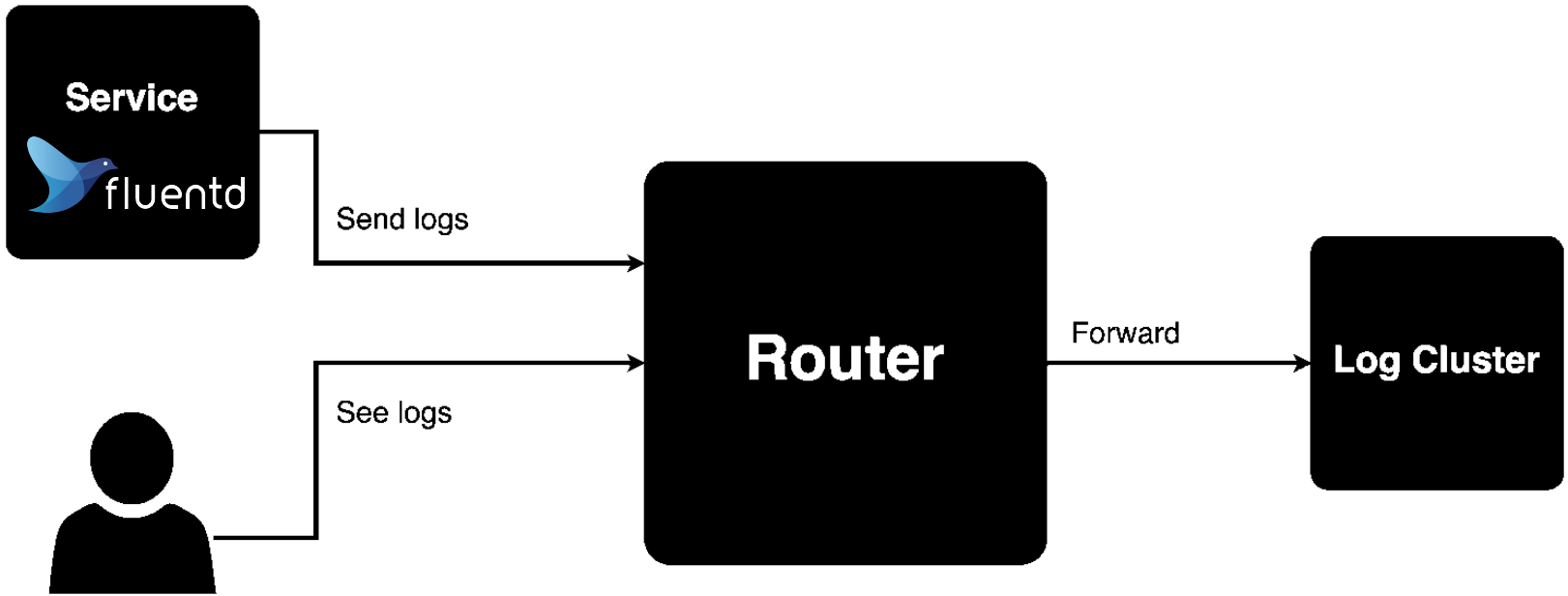
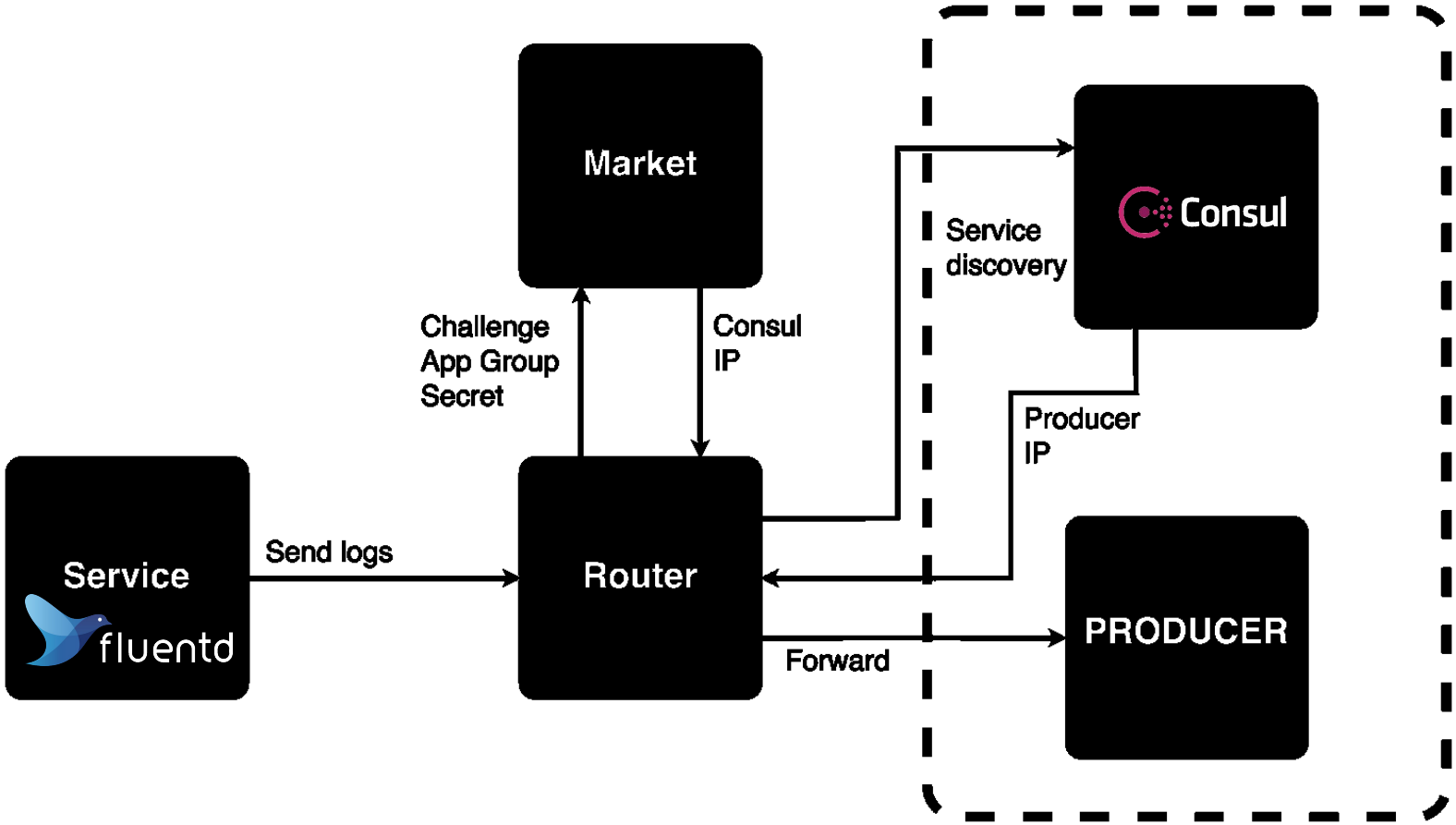
BARITO ROUTER


Service
fluentd
Send logs
See logs
Router
Forward
Log Cluster

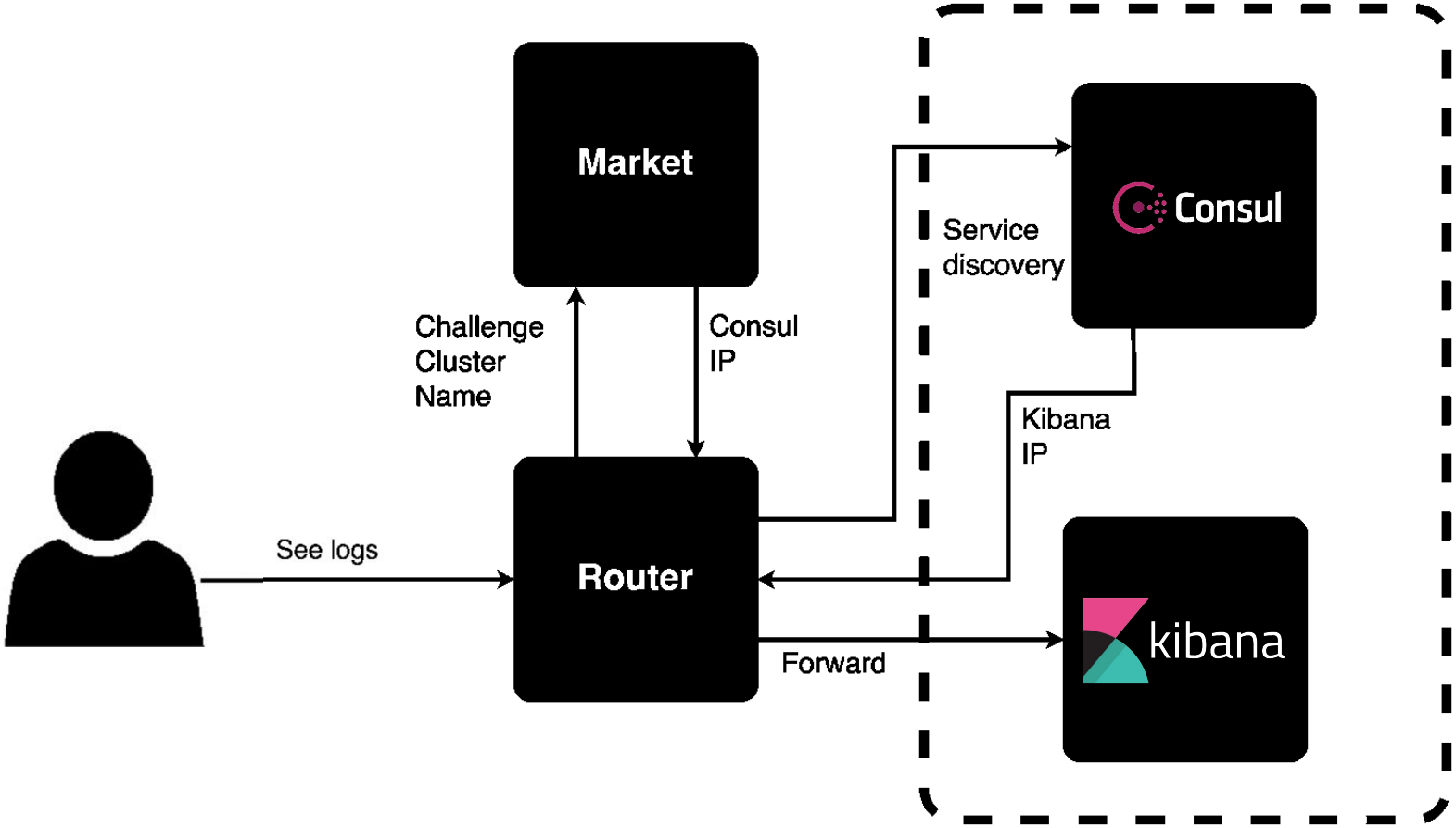
WHICH APP GROUP???


Market
Consul
Service discovery
Challenge
App Group
Secret
Consul
IP
Producer
IP
Service
fluentd
Send logs
Router
PRODUCER
Forward

All Applications

Name	Topic Name	App Secret	Max TPS	Status	Log Count	Created At (UTC)	Actions
k8s-mfn-redis-01	k8s-mfn-redis-01	2500ac183b85418fb2911caae37a2e17	50	Active	10724	01 November 2019, 18:54:45	
k8s-mfn-vote-01	k8s-mfn-vote-01	bce6fe1bf2e142a7bf6fe270a1491c47	50	Active	1117	01 November 2019, 18:52:33	
k8s-mfn-worker-01	k8s-mfn-worker-01	8271818bf5cf45d2a24e954b3e136d30	50	Active	1907	01 November 2019, 18:53:40	

SEE THE LOGS


Market
Consul
Service
discovery
Challenge
Cluster
Name
Consul
IP
Kibana
IP
See logs
Router
kibana
Forward

SETUP BARITO

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Add Barito Helm Chart Repo

```
helm repo add barito https://baritolog.github.io/helm-charts
```

Create Helm Chart Value

```
apps:
  - name: vote
    applicationGroupSecret: 66ff8axxxxxxxxxxxxxxxxxxxxxxxx
    baritoAppName: k8s-mfn-vote-01
    produceUrl: https://example-router.com/produce_batch
  - name: worker
    applicationGroupSecret: 66ff8axxxxxxxxxxxxxxxxxxxxxxxx
    baritoAppName: k8s-mfn-worker-01
    produceUrl: https://example-router.com/produce_batch
```

Install Barito Agent

```
helm install barito/td-agent-barito \
--name=td-agent-barito --values=myApps.yaml \
--set rbac.create=true
```

Add Annotation

```
spec:
  template:
    metadata:
      annotations:
        barito.active: "true" # We also still accept fluentd.active: "true"
```

VM

barito-agent-cookbook

Chef cookbook to setup Barito Agent on our nodes.

Using `fluent-plugin-systemd`

Below is the examples of input configuration.

```
default[cookbook_name]['sources'] = [
  {
    type: 'systemd',
    name: 'barito-journalctl',
    path: '/run/log/journal',
    raw_options: ['matches'],
    matches: [{'_SYSTEMD_UNIT': 'syslog.service'}],
    read_from_head: true,
    storage: {
      '@type': 'local',
      persistent: true,
      path: '/etc/td-agent/barito-journalctl.pos'
    },
    entry: {
      fields_strip_underscores: true,
      fields_lowercase: true
    }
  }
]
```

```
<source>
  @type tail
  tag barito-test
  name barito-test
  path /var/log/barito-test.log
  pos_file /etc/td-agent/barito-test.pos
  <parse>
     @type none
  </parse>
</source>
```

```
<match barito-test>
  @type barito_batch_vm
  name barito-test
  application_group_secret abcxyz
  application_name svc-a-worker
  produce_url https://example-router.com/produce_batch
  <buffer>
     ...
  </buffer>
</match>
```

BARITO NOW

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Average

1.6M/m

Max

2.1M/m

BARITO LOKI

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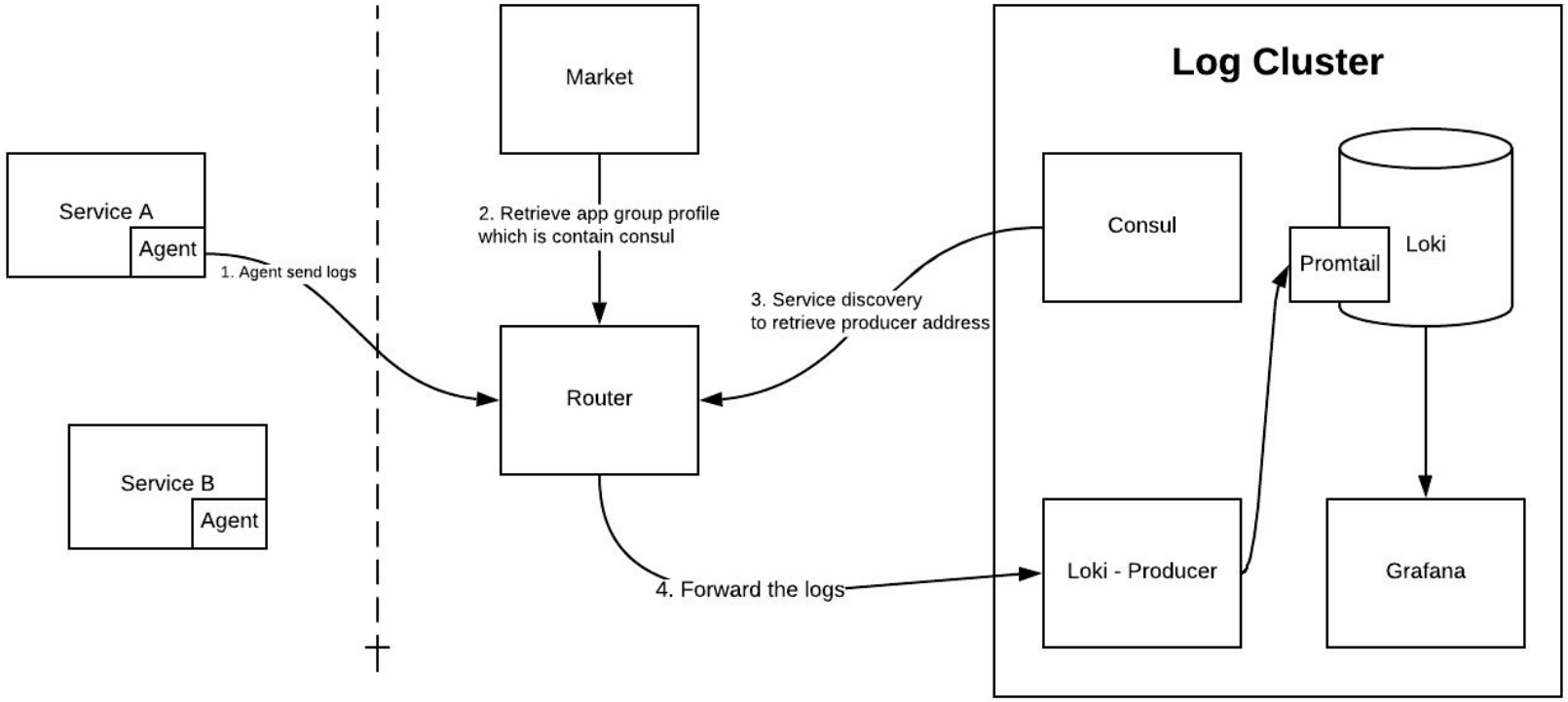
Market
Log Cluster
Service A
Agent
1. Agent send logs
2. Retrieve app group profile
which is contain consul
3. Service discovery
to retrieve producer address
Consul
Promtail
Loki
Router
Service B
Agent
4. Forward the logs
Loki - Producer
Grafana

Cluster Template Details

Name: Log - Loki

Instances:


```
[
  {
    "type": "yggdrasil",
    "count": 0
  },
  {
    "type": "consul",
    "count": 1
  },
  {
    "type": "loki",
    "count": 1
  },
  {
    "type": "barito-flow-loki",
    "count": 1
  },
  {
    "type": "grafana",
    "count": 1
  }
]
```

BENCHMARK

	ONLY CONSUMED	INDEX to ES	INDEX and STORE to ES	STORE to LOKI
MAX_TPS	64K/s	2K/s - 2,5K/s	1.4K/s - 1.7K/s	48K/s

- Depend on your ES setup, memory and disk
- Loki haven't tested on our production

OPEN SOURCE IS AWESOME
LETS BE PART OF IT
imgflip.com

BaritoLog

Repositories 41 | Packages | People 13 | Teams 2 | Projects

Pinned repositories

wiki
Read this first
Shell ★ 14 2

BaritoMarket
On-demand logging infrastructure platform
Ruby ★ 26 8

barito-router
Route from outside world to barito world
Go ★ 6 4

barito-flow
Handling logs transportation within cluster
Go ★ 2 6

Barito-Fluent-Plugin
Barito plugin for Fluentd - this way barito forwards traffic to appropriate barito log receiver.
Ruby ★ 3 1

td-agent-barito-kubernetes
Build docker image of barito agent for kubernetes
Smarty 3

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THANKS!

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GOPAY SYSTEMS TEAM
A.G.

Read more: https://blog.gojekengineering.com/

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