Gophers guide to Data Streaming at Scale with Benthos

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Joint GoSF ✈ GolangNYC Meetup

Disclaimers

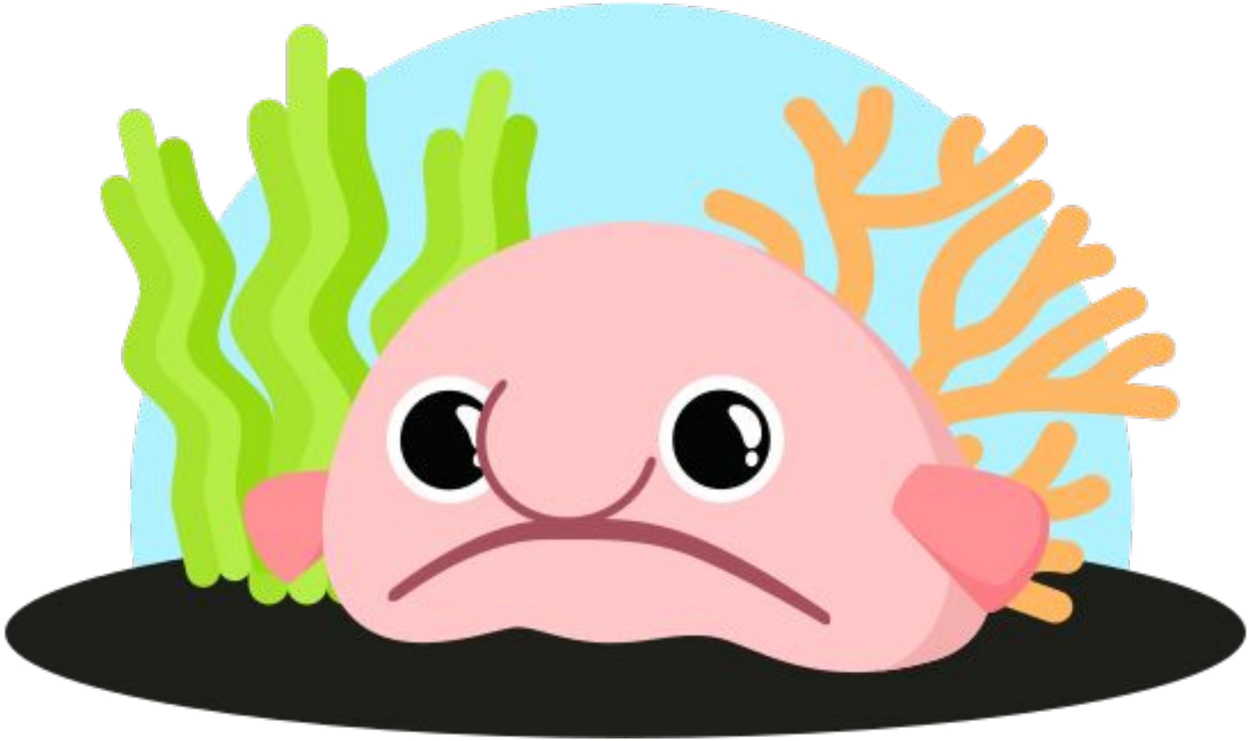
- ➢ Thoughts expressed here are my own
- ➢ Benthos is owned and maintained by Ash: https://twitter.com/Jeffail/
- ➢ Ash designed and built Benthos from scratch
- ➢ I help out and send PRs occasionally

Ashley Jeffs
@Jeffail Follows you

A bland person, building benthos.dev.

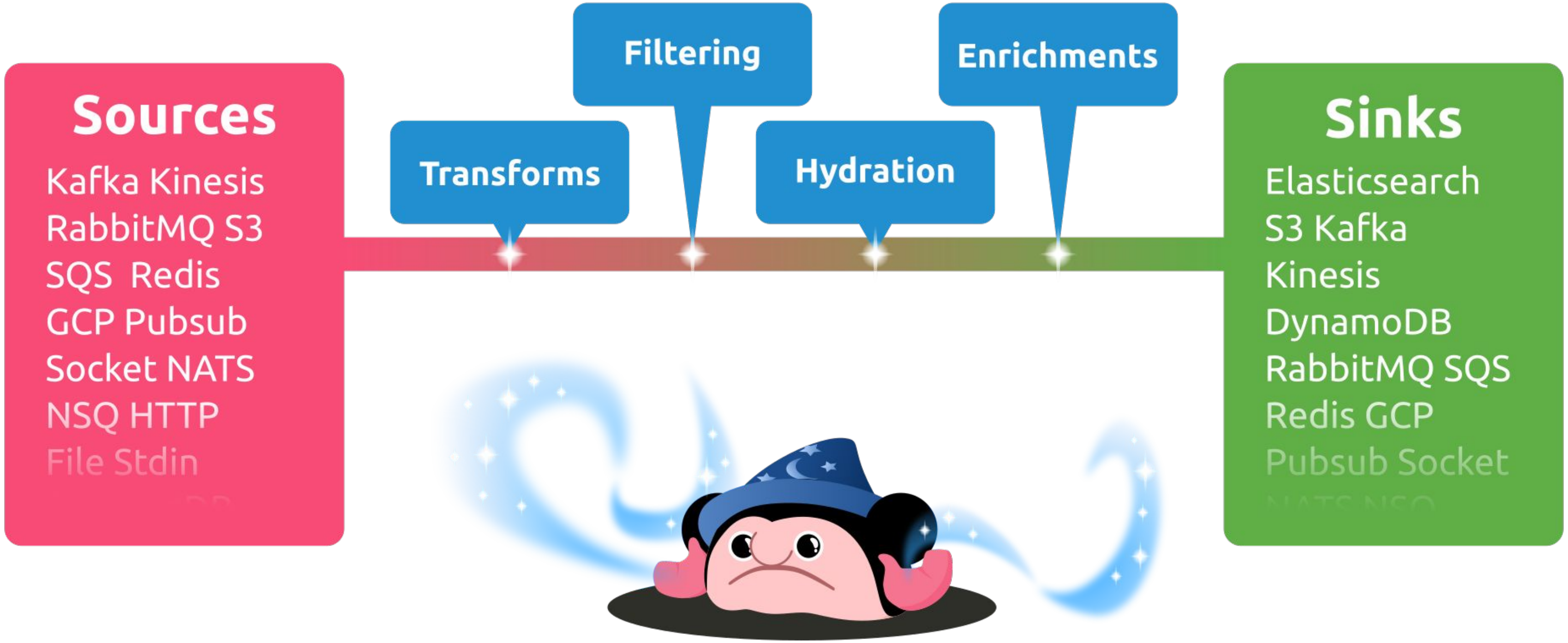
Github: github.com/Jeffail/benthos
YouTube: youtube.com/c/Jeffail

What is Benthos? https://www.benthos.dev/



Hint: It has nothing to do with deep sea fish, except for the logo

What is Benthos for?



“Fancy stream processing made operationally mundane” - Ash Jeffs

Podcasts

- ➢ Go Time Podcast episode #192: https://changelog.com/gotime/192
- ➢ What is Data Streaming?

- ➢ The Data Stack Show Podcast episode #60: https://datastackshow.com/podcast/architecting-a-boring-stream-processing-tool-with-ashley-jeffs-of-benthos/
- ➢ Project history

Boringly easy to use

```
# Install
curl -Lsf https://sh.benthos.dev | bash

# Make a config
benthos create stdin/bloblang/stdout > ./config.yaml

# Run
benthos -c ./config.yaml
```

Features

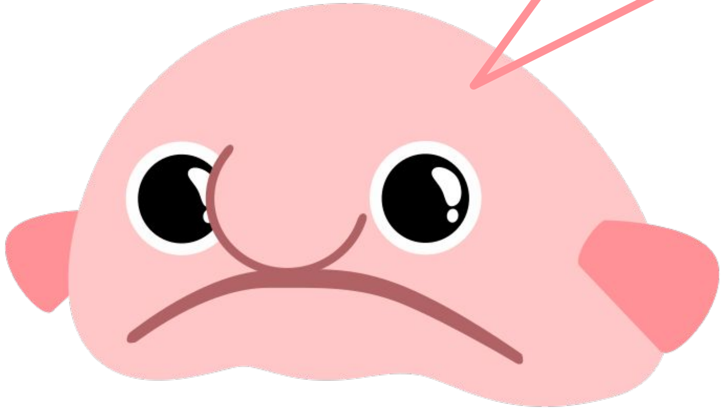
- ➢ Declarative YAML-based configuration
- ➢ Single message transforms
- ➢ Stateless
- ➢ At least once delivery
- ➢ Metrics and logging
- ➢ Custom Plugins
- ➢ Written in Go

Bloblang

Custom DSL for arbitrary data transforms

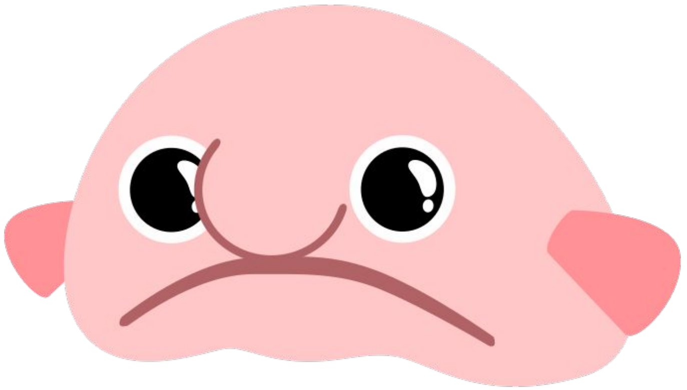
```
{
 "doc": {
   "type": "article",
   "article": {
     "id": "foo",
     "content": "qux"
   }
 }
}
```

```
root.new_doc = match this.doc {
 this.type == "article" => this.article
 this.type == "comment" => this.comment
 _ => this
}
```



```
{
 "new_doc": {
   "id": "foo",
   "content": "qux"
 }
}
```

Deployment models


Standalone CLI app

Serverless

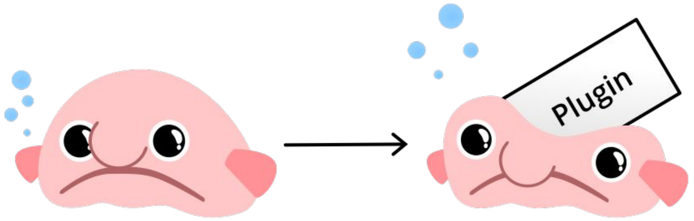
Kubernetes

Importing Benthos as a library

```
> go get github.com/Jeffail/benthos/v3/public/components/all
```

```go
package main

import (
	"context"

	"github.com/Jeffail/benthos/v3/public/service"

	// Import all standard Benthos components
	_ "github.com/Jeffail/benthos/v3/public/components/all"
)

func main() {
	service.RunCLI(context.Background())
}
```

Writing a custom Benthos plugin



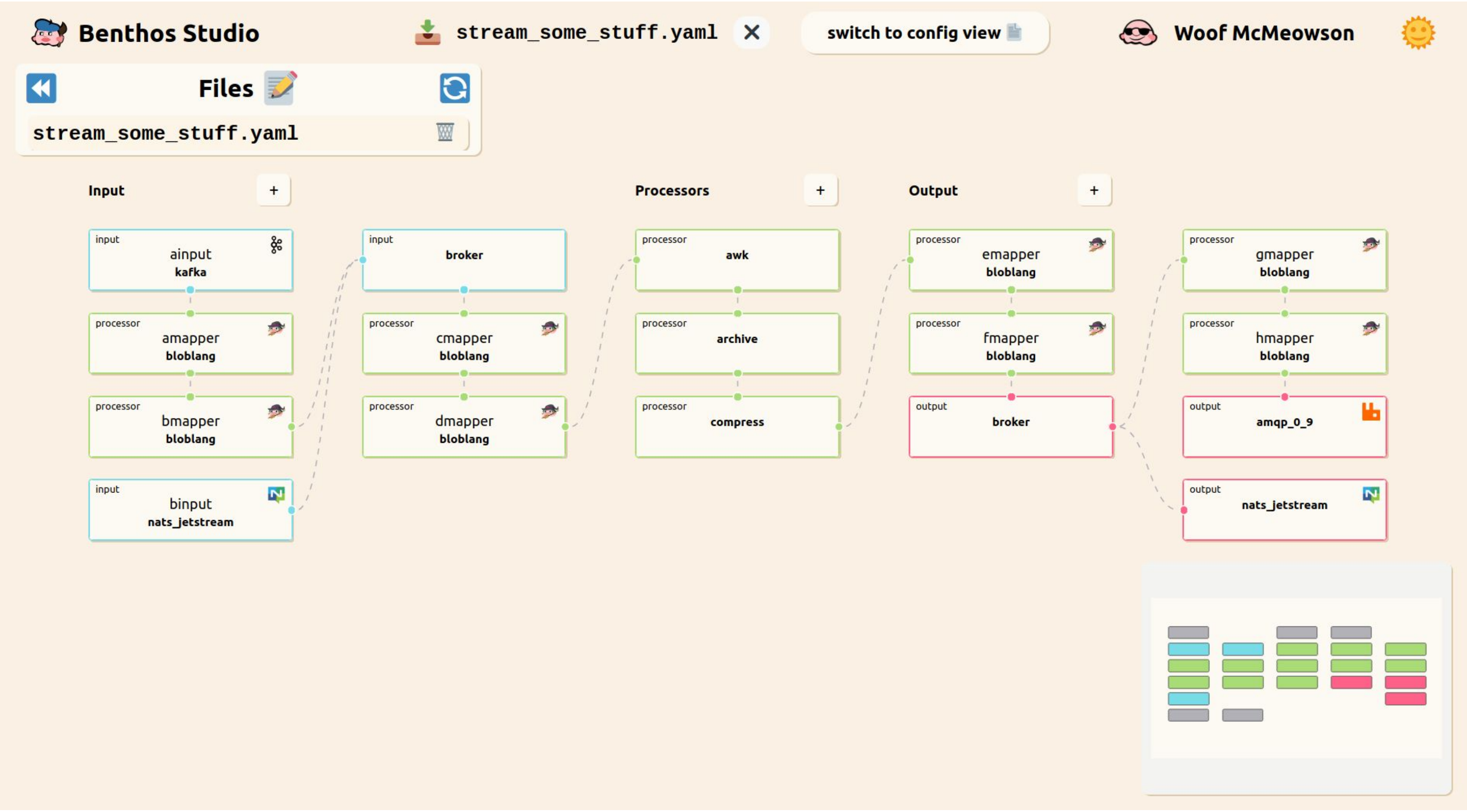
```go
type processor struct{}

func (r *processor) Process(ctx context.Context, m *service.Message) (service.MessageBatch, error) {
   println("foobar")
   return nil, nil
}

func (r *processor) Close(ctx context.Context) error { return nil }

func init() {
   _ = service.RegisterProcessor("foobar",
       service.NewConfigSpec(),
       func(conf *service.ParsedConfig, mgr *service.Resources) (service.Processor, error) {
           return &processor{}, nil
       },
   )
}
// ./plugin create stdin/foobar/stdout > config.yaml
// ./plugin -c config.yaml
```

Future enhancements and goodies

More adapters

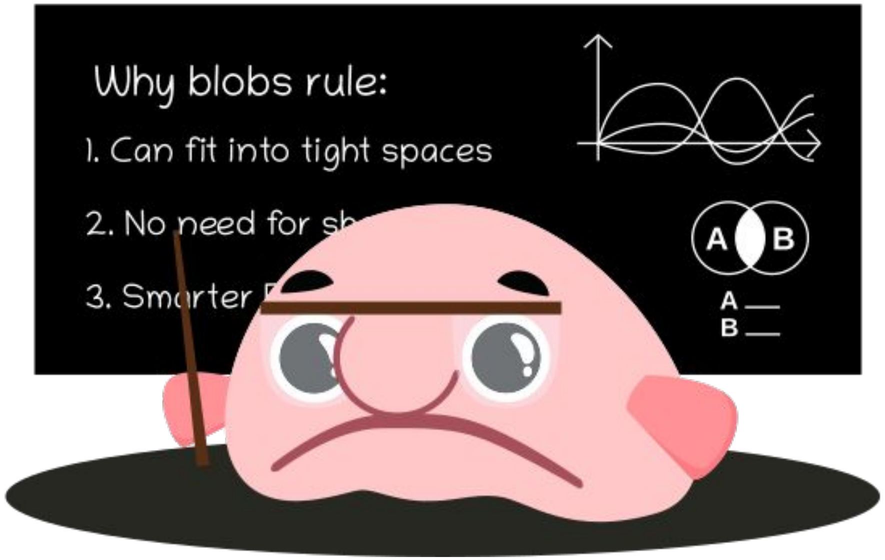
Custom plugins

Benthos Studio


Benthos Studio
stream_some_stuff.yaml
switch to config view
Woof McMeowson
Files
stream_some_stuff.yaml
Input
+
Processors
+
Output
+
input ainput kafka
processor amapper bloblang
processor bmapper bloblang
input binput nats_jetstream
input broker
processor cmapper bloblang
processor dmapper bloblang
processor awk
processor archive
processor compress
processor emapper bloblang
processor fmapper bloblang
output broker
processor gmapper bloblang
processor hmapper bloblang
output amqp_0_9
output nats_jetstream

Why Open Source?

- Built on the shoulders of giants
- Community-driven features, enhancements and bug fixes
- High quality standards enforced uniformly
- Open issue tracker and permanent change history
- Avoids vendor-driven lock-in

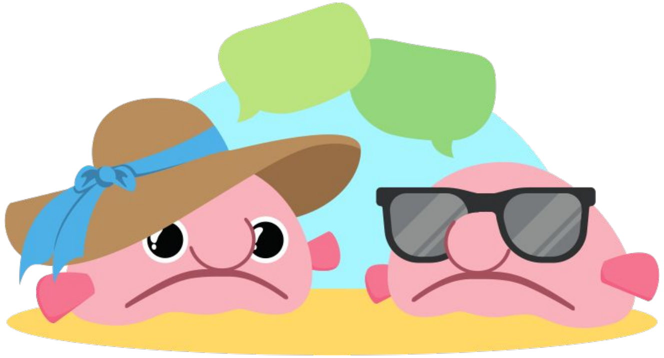


Open Source Needs You!

Community https://www.benthos.dev/community

Discord

https://discord.gg/6VaWjzP



slack

https://invite.slack.golangbridge.org

#benthos channel

Optum's hiring!

DB Babjack
Open Source

Aaron Strey
Data Mesh

Kate Agnew
Observability

Thank you!

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- ➢ https://twitter.com/MihaiTodor
- ➢ https://github.com/mihaitodor