

singleflight

and its usage in 17 media

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- singleflight
- usage in 17 media

- **singleflight**
- usage in 17 media

package singleflight

```
import "golang.org/x/sync/singleflight"
```

Package singleflight provides a duplicate function call suppression mechanism.

Index

[type Group](#)

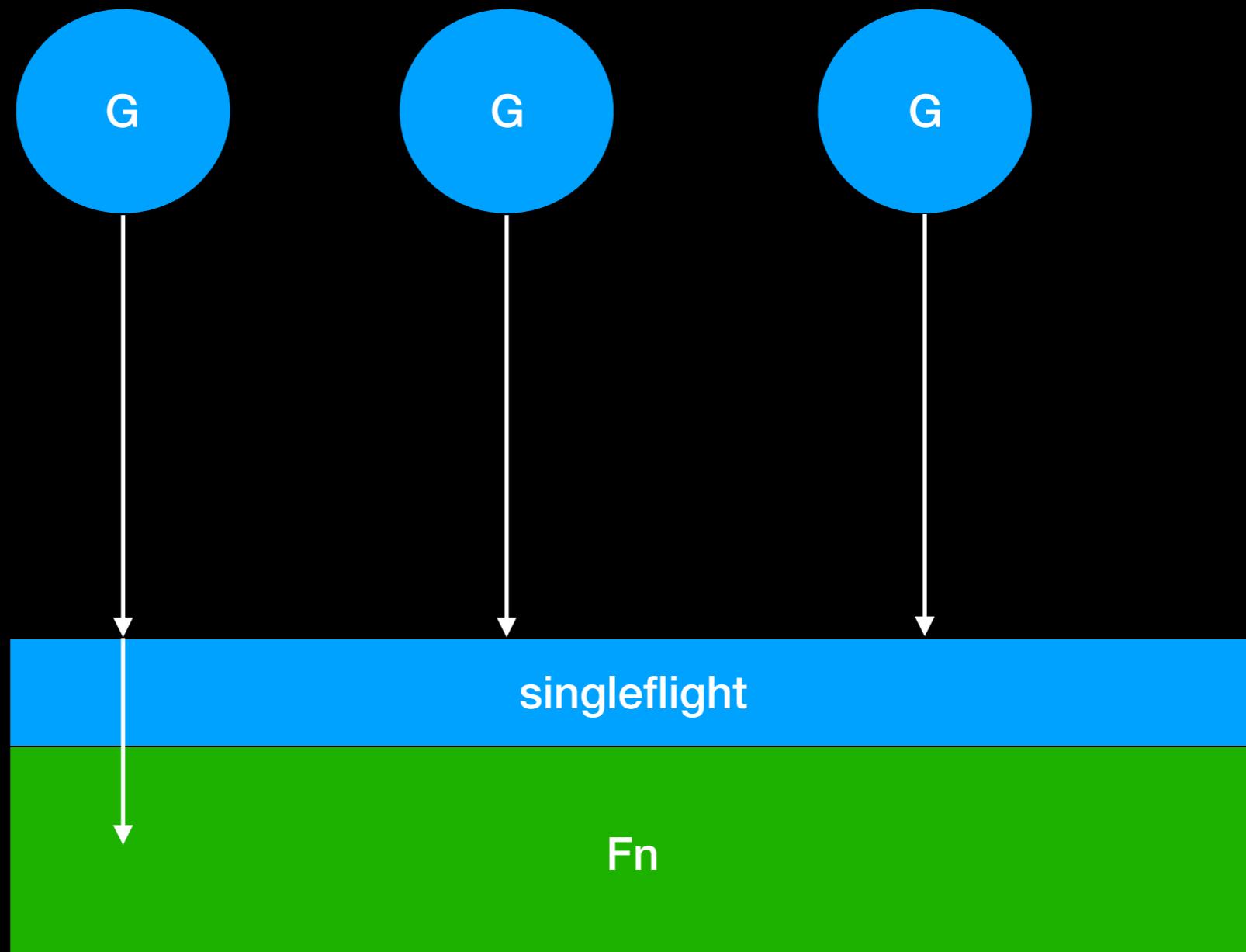
- [func \(g *Group\) Do\(key string, fn func\(\) \(interface{}, error\)\) \(v interface{}, err error, shared bool\)](#)
- [func \(g *Group\) DoChan\(key string, fn func\(\) \(interface{}, error\)\) <-chan Result](#)
- [func \(g *Group\) Forget\(key string\)](#)

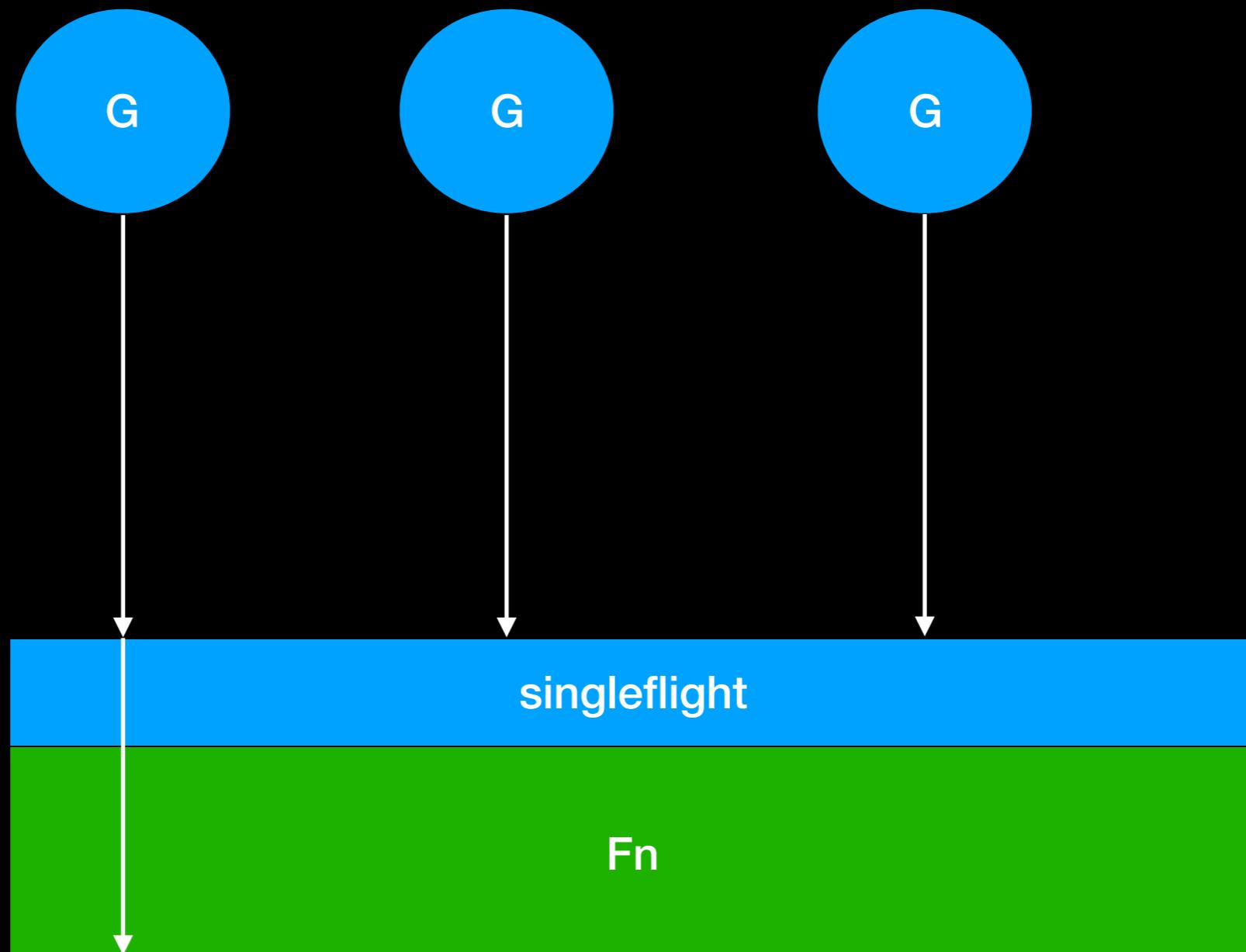
[type Result](#)

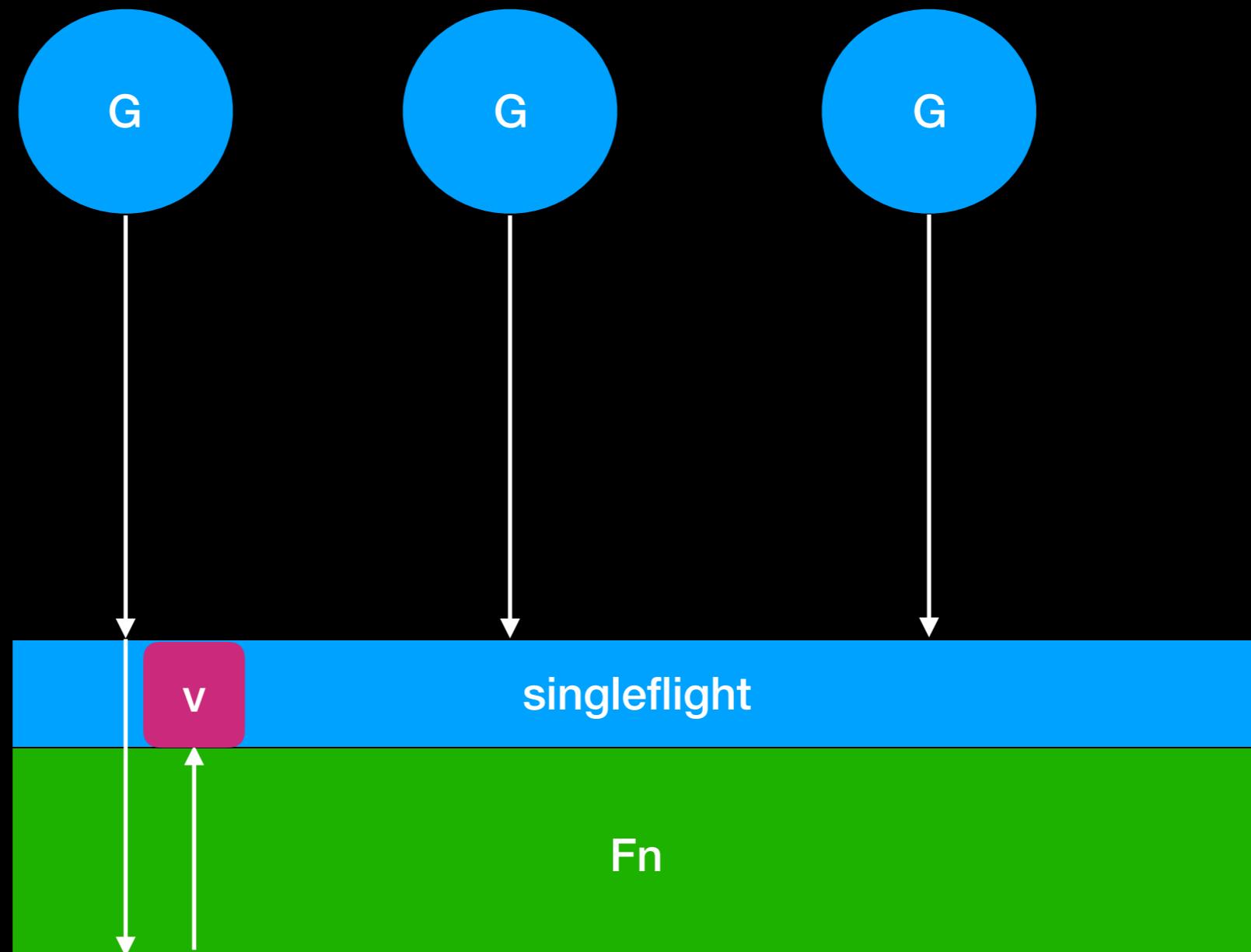
```
func (g *Group) Do(  
    key string,  
    fn func() (interface{}, error))
```

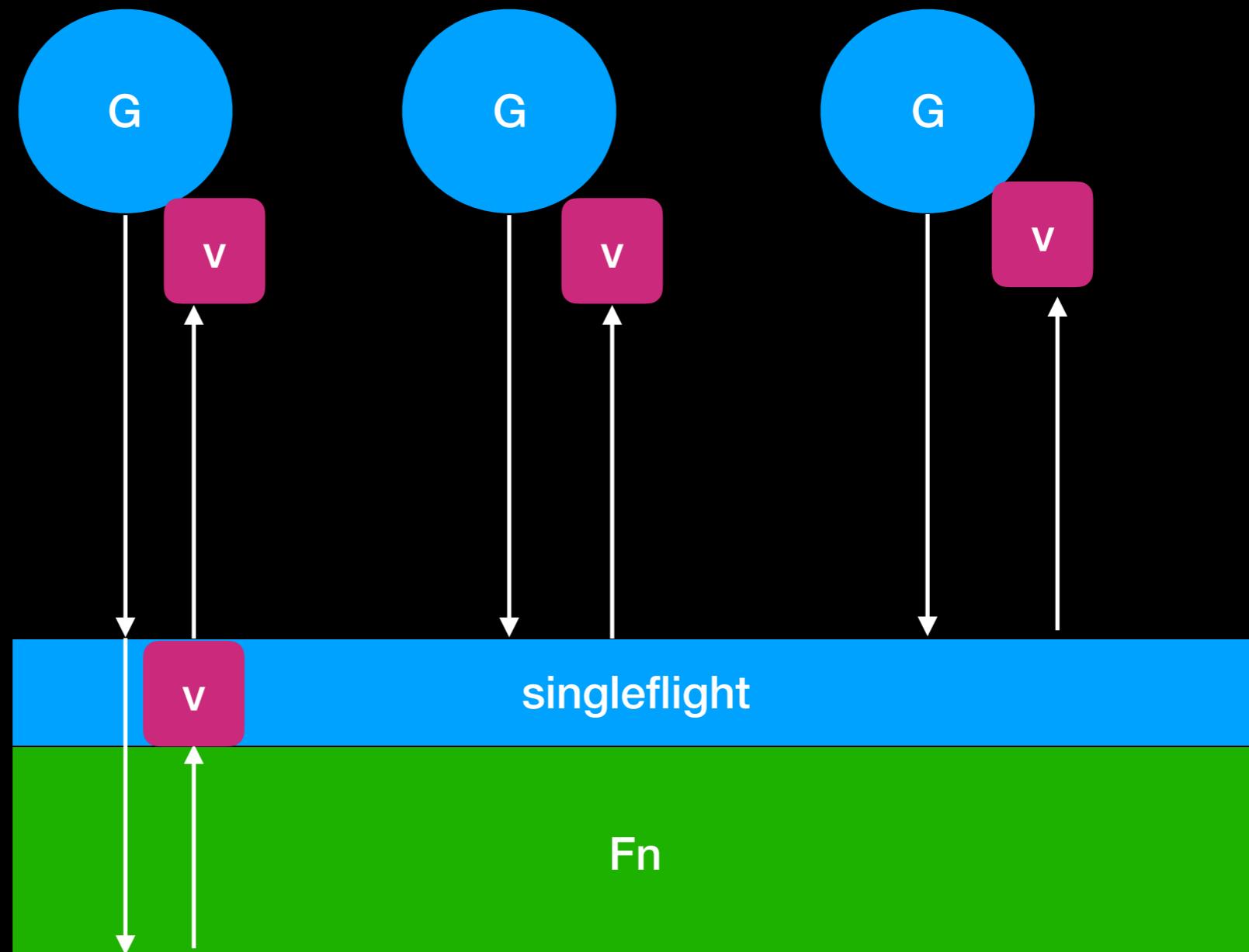
```
(v interface{}, err error, shared bool)
```





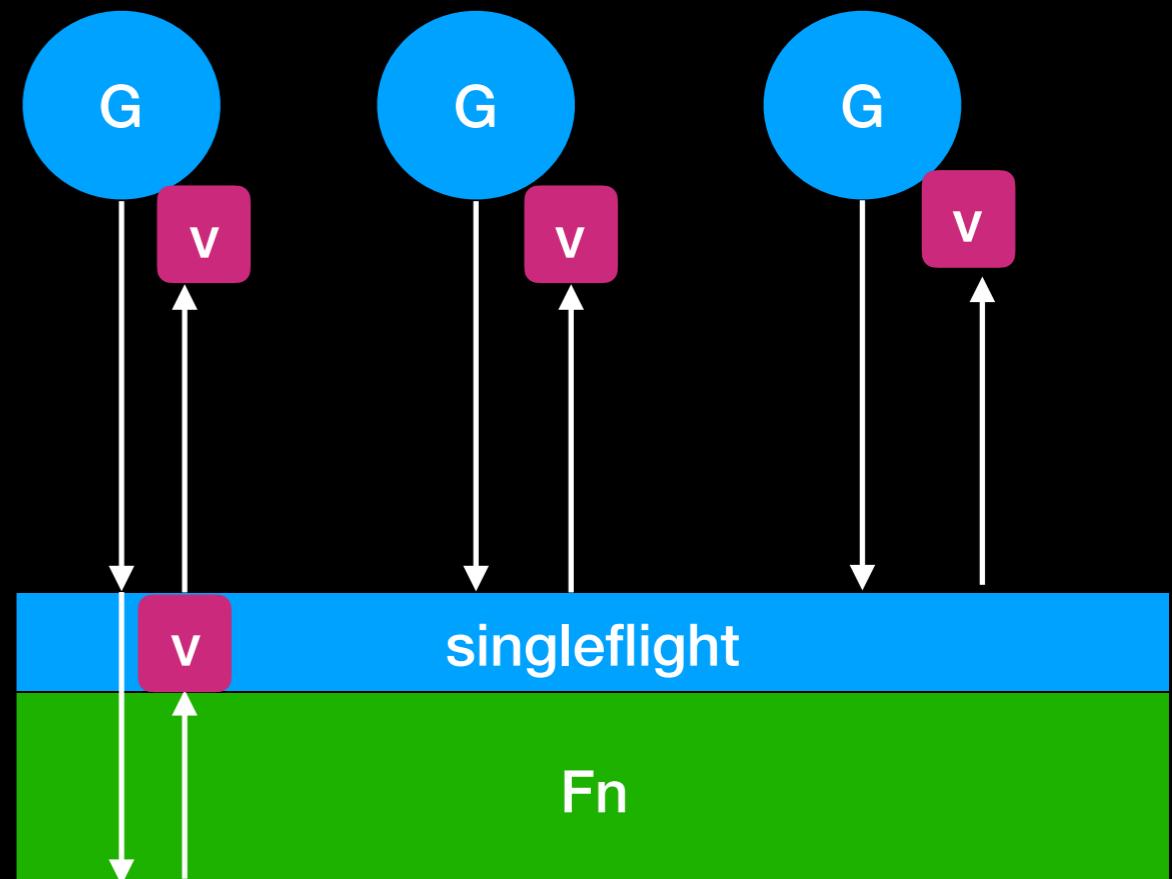






singleflight

- localcache
 - cache evicted when Fn finished
 - No need of Marshal/Unmarshal



- singleflight
- usage in 17 media

Cache Hierarchy

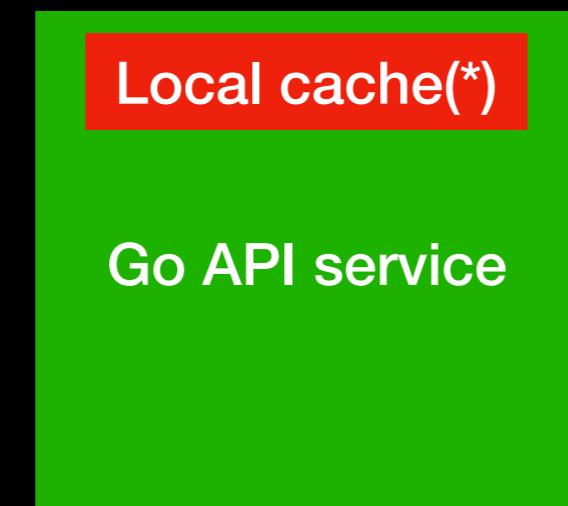


Database



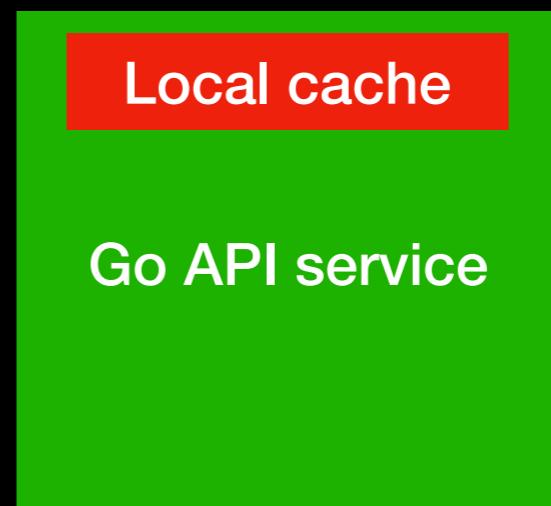
Redis

***: coocood/freecache**



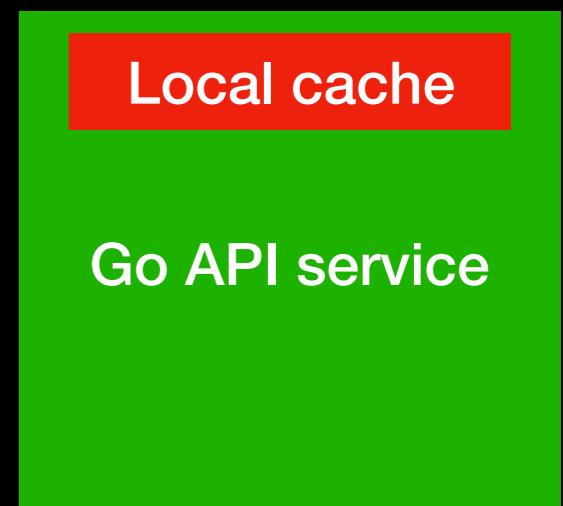
Local cache(*)

Go API service



Local cache

Go API service

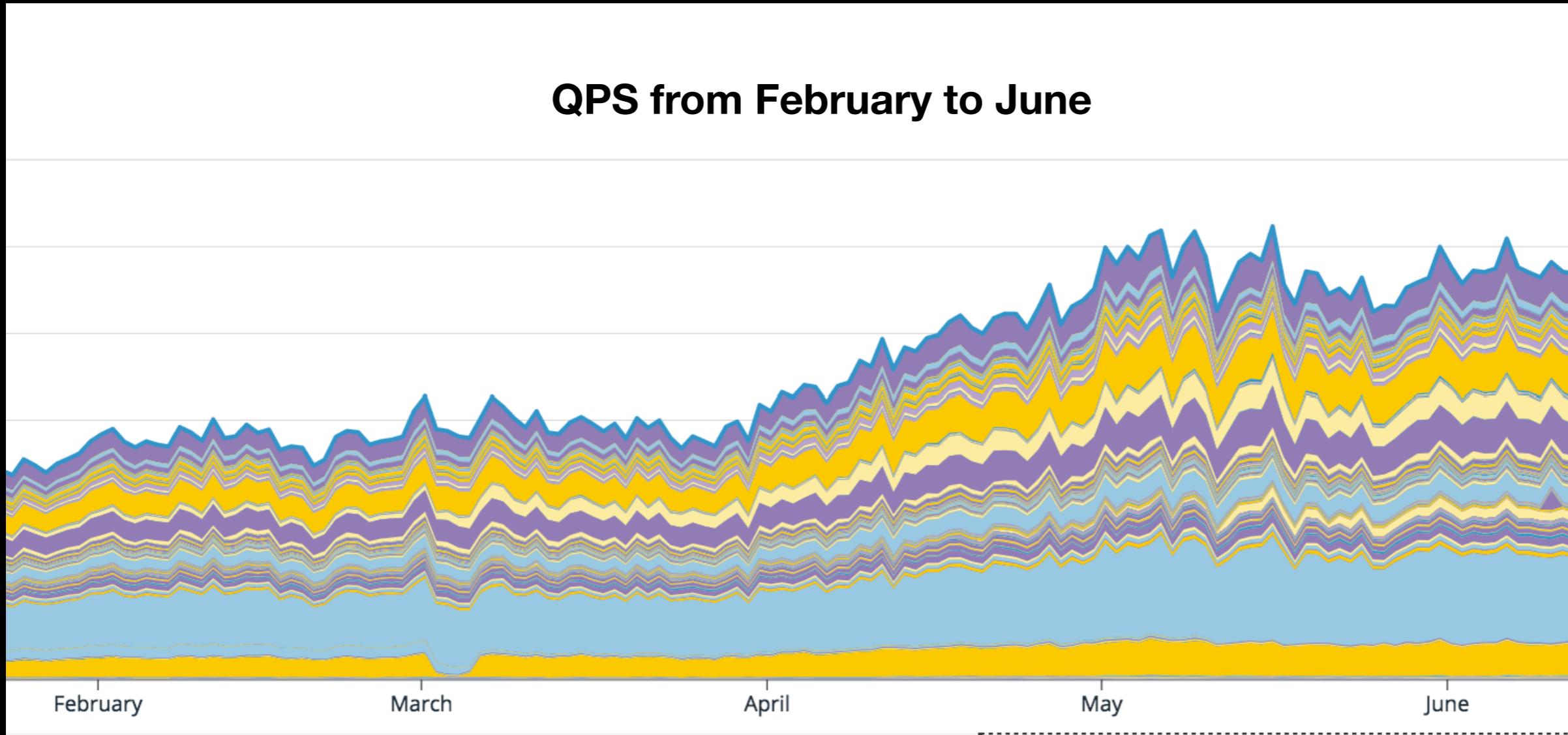


Local cache

Go API service

Traffic is Growing

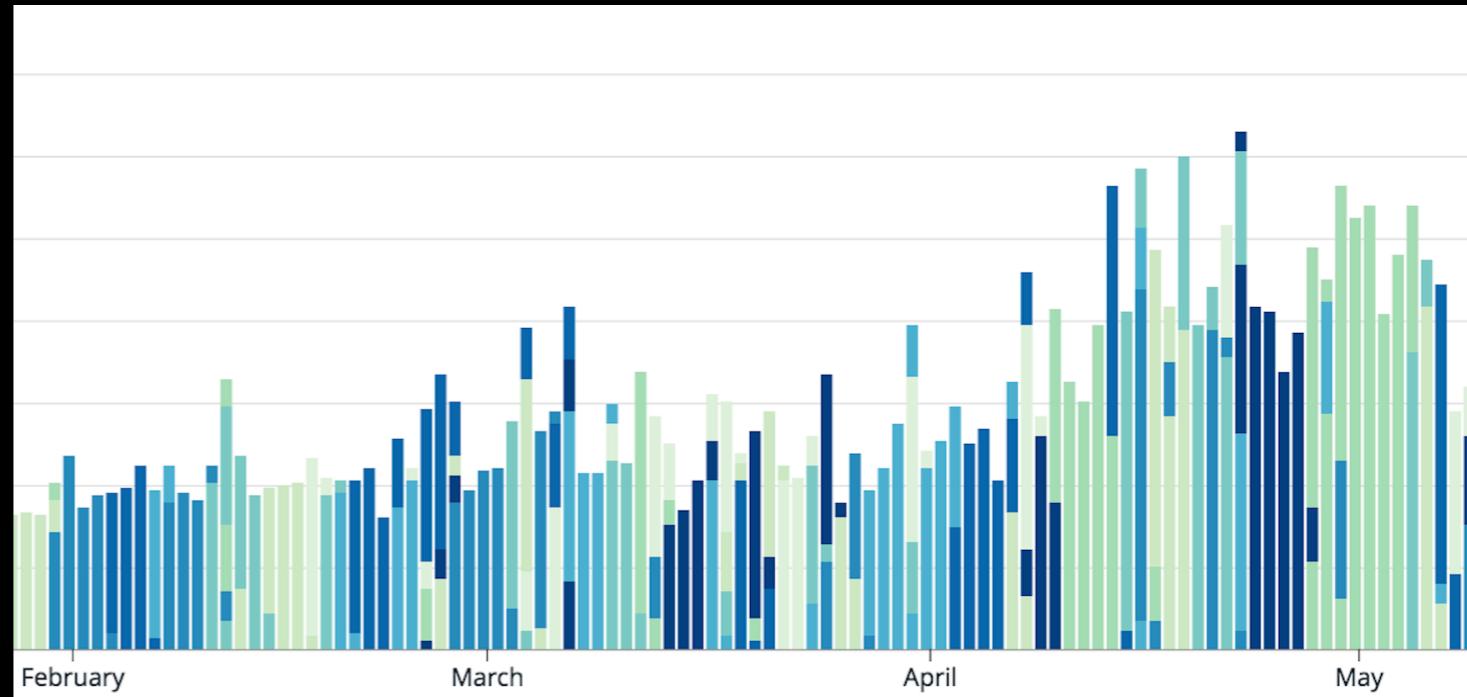
QPS from February to June



Enhance System Capacity

- Traffic * 2
- Pods * 2
- Any methods to improve?

Pods change from February to May



Profiling

- Go Profiling Type Builtin
 - cpu
 - memory
 - goroutine
 - mutex
- net/http/pprof
 - Enable in every go service
 - Integrate with Slackbot

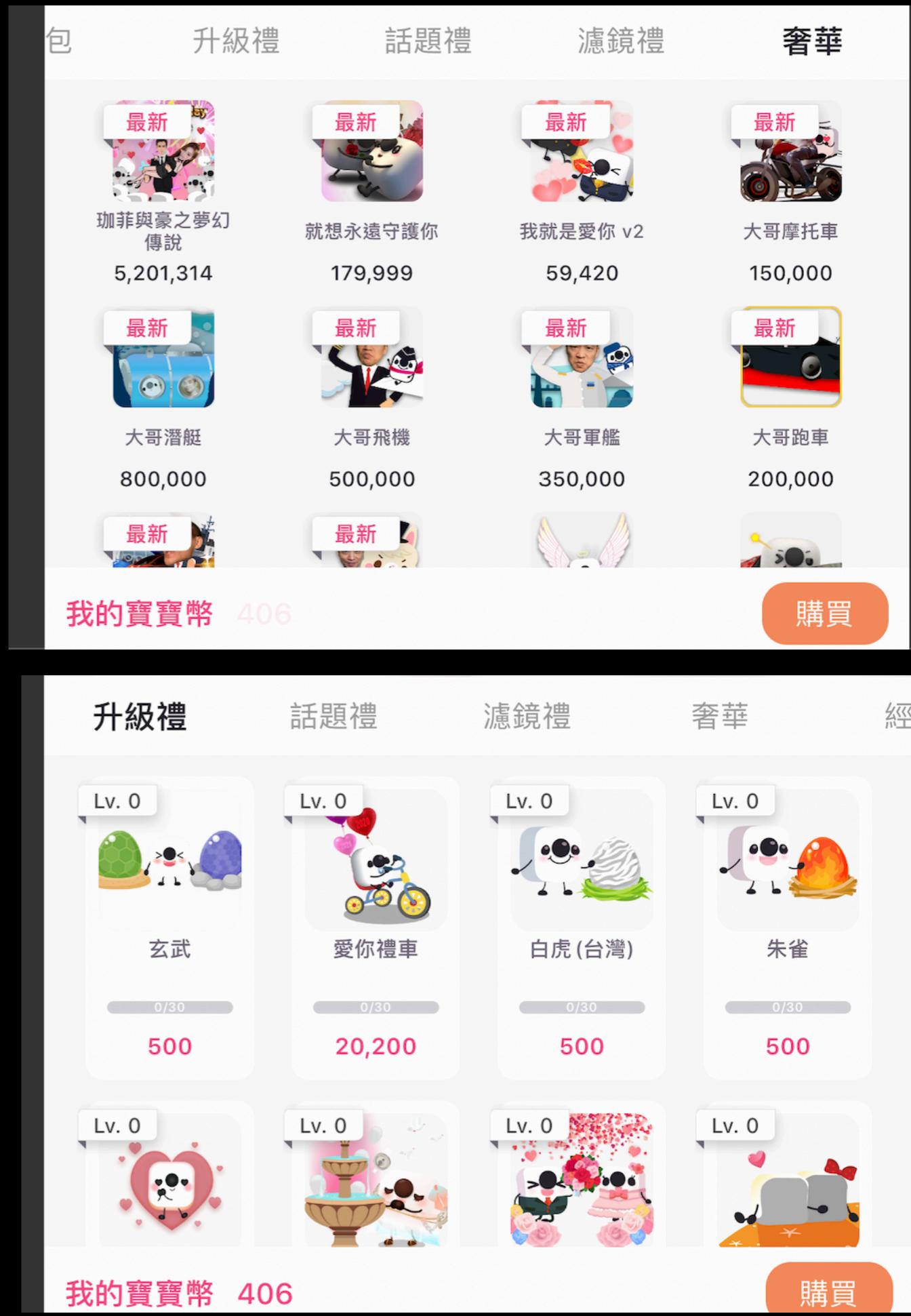
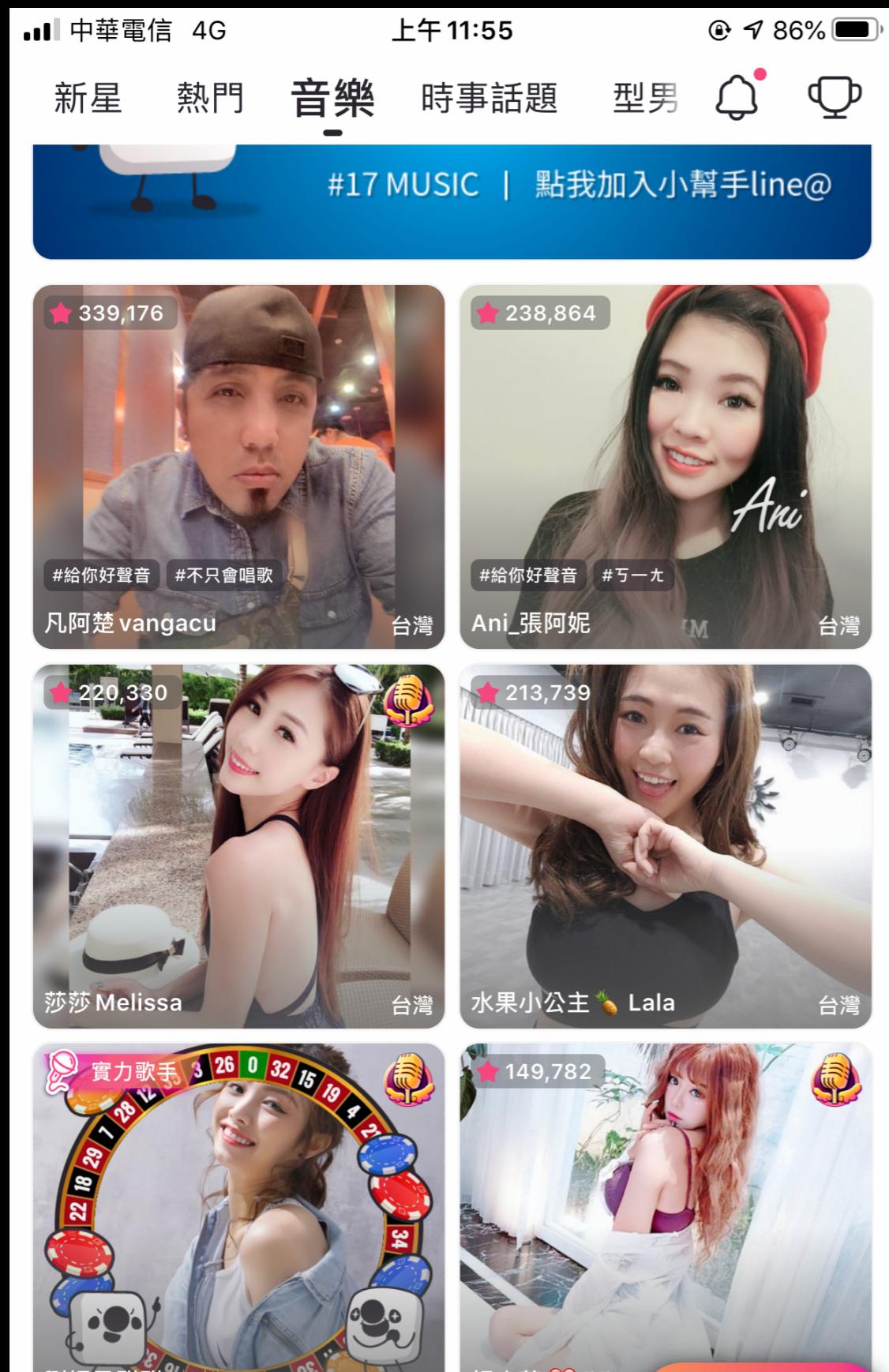
Auto Profiling

- Datadog monitor -> Slackbot

CPU Profiling

- Flamegraph
 - Encode
 - Decode

直播列表/禮物列表



CPU Usage

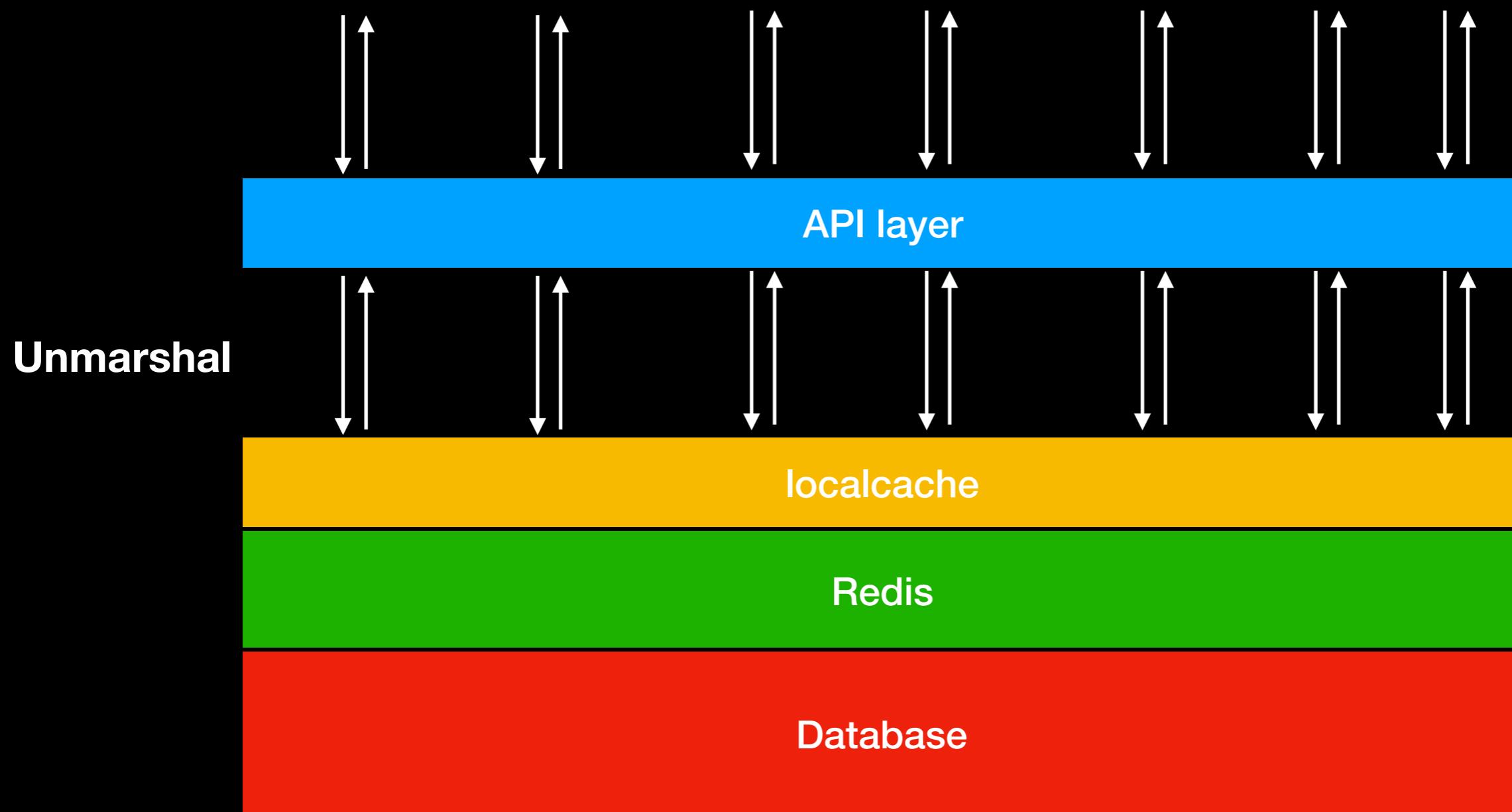
- Huge data
 - JSON Response (**Marshal**)
 - **Load from cache (**Unmarshal**)**

Reduce UnMarshal from Cache?

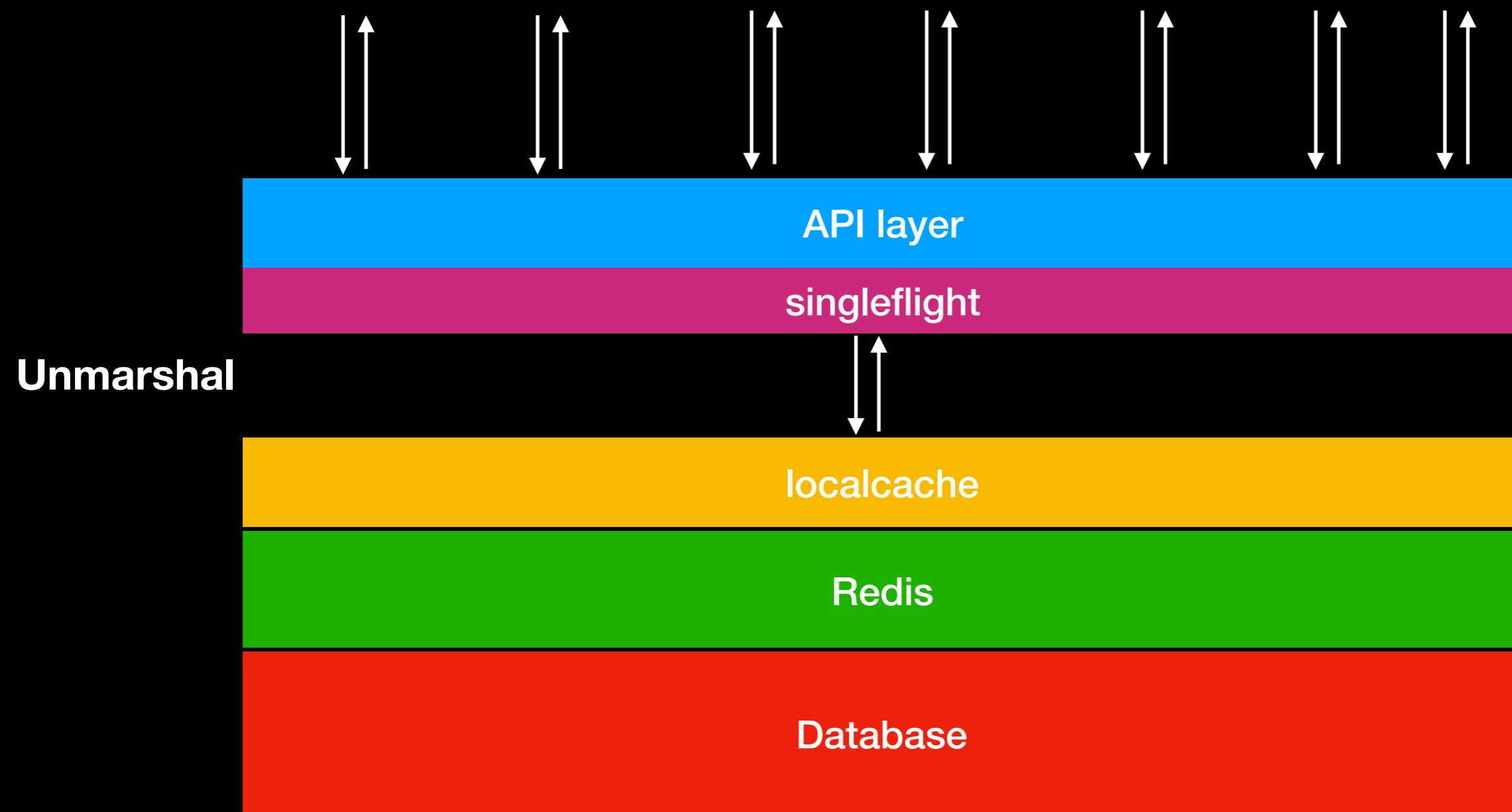


singleflight !

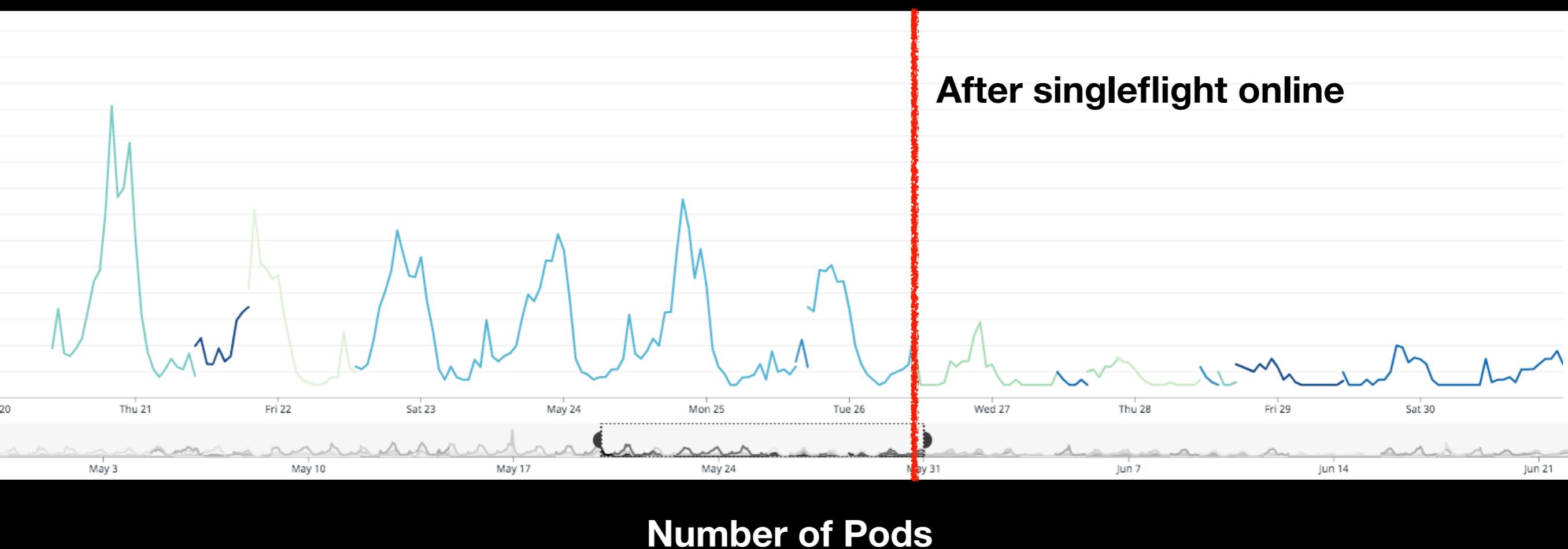
For heavy loading APIs



For heavy loading APIs

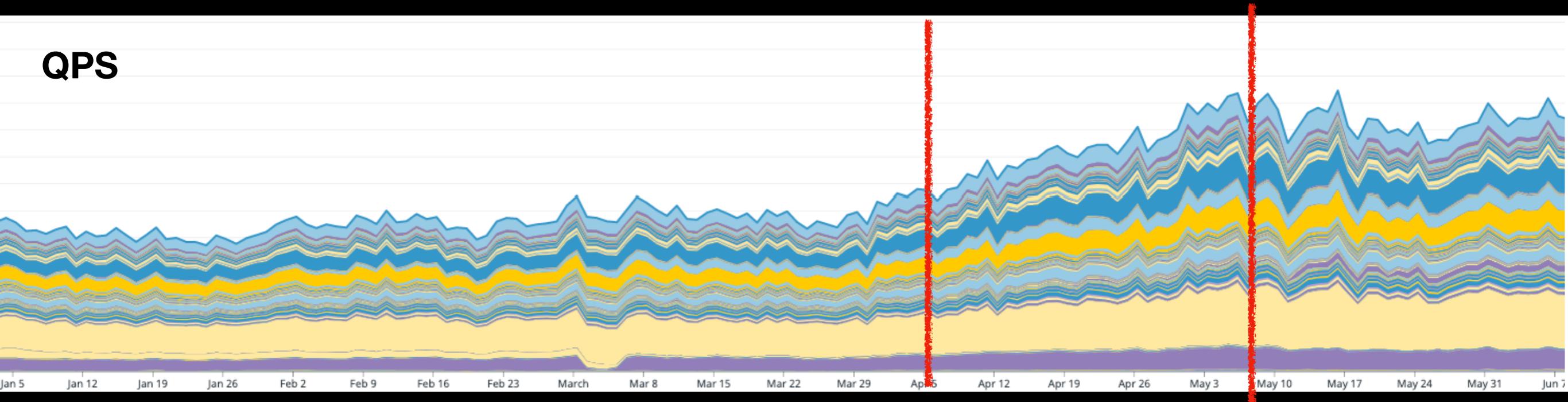


Results

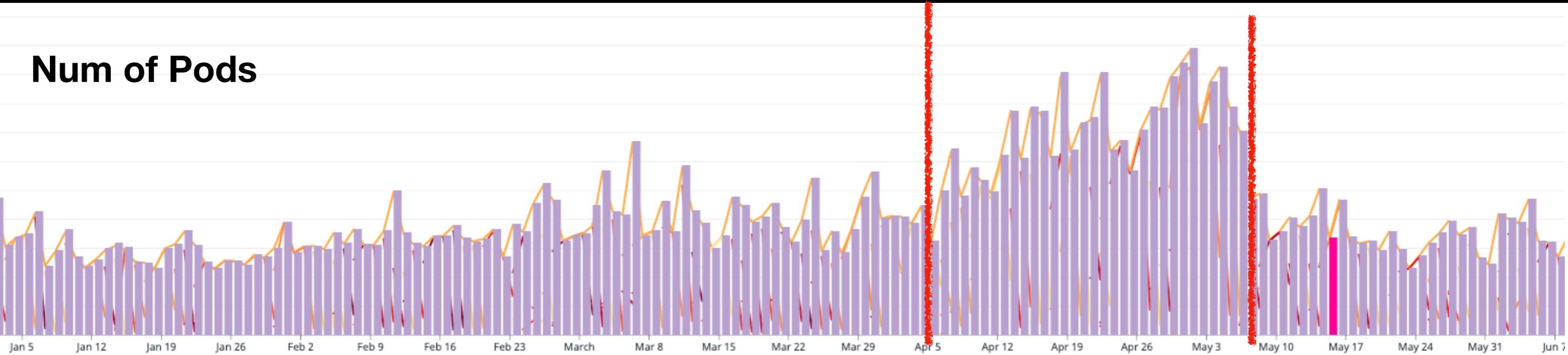


Results

QPS



Num of Pods



Conclusion

- singleflight is good for high concurrent environment
- Think about where to put singleflight in the system
- We also do other optimizations rather than singleflight

Q&A