

JustFootball's Journey to gRPC + Linkerd in Production


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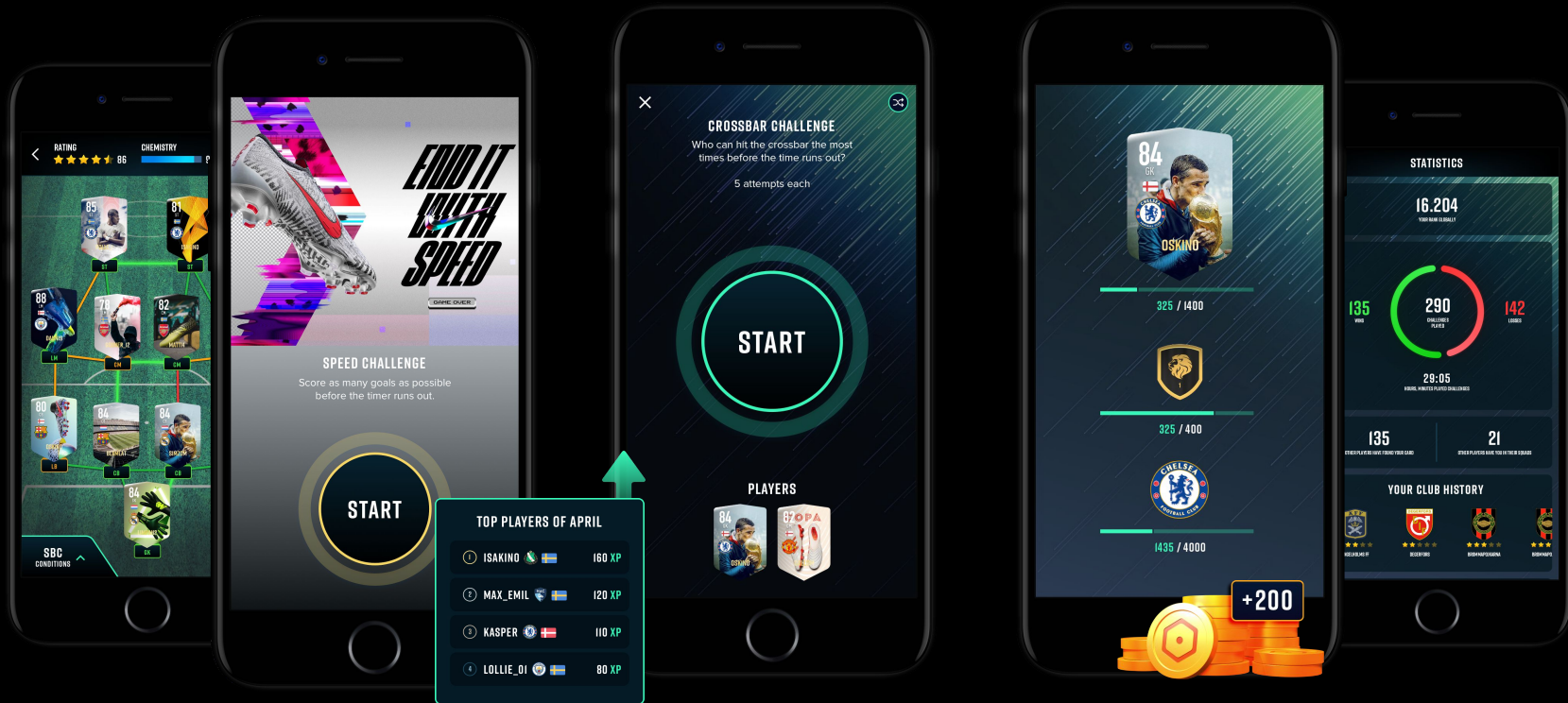


The background features a repeating pattern of triangles in various shades of blue and green, creating a geometric, low-poly aesthetic. A solid dark blue horizontal bar spans the bottom of the image.

Just Football





What is Just Football?

- Startup founded in 2016
- Based in Stockholm
- App for getting more kids playing more football

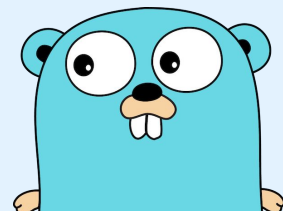
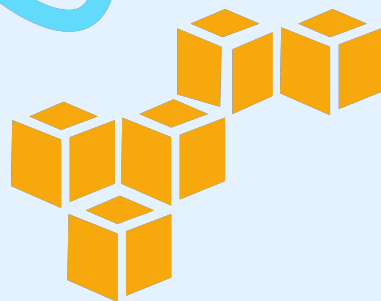
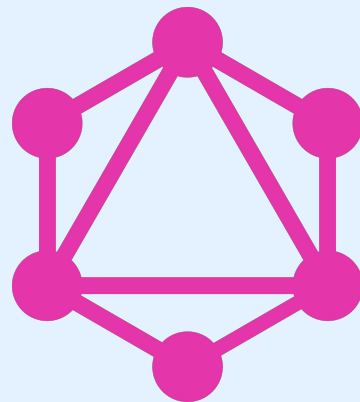
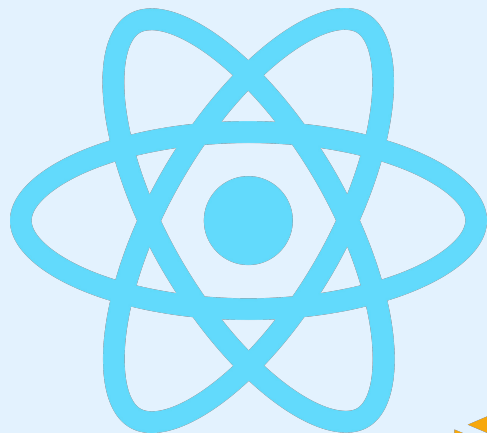




TOP SPEEDS

- | | | | |
|---|-----------|---|---------|
| ① | ISAKIND |  | 68 KM/H |
| ② | MAX_EMIL |  | 65 KM/H |
| ③ | KASPER |  | 59 KM/H |
| ④ | LOLLIE_OI |  | 58 KM/H |

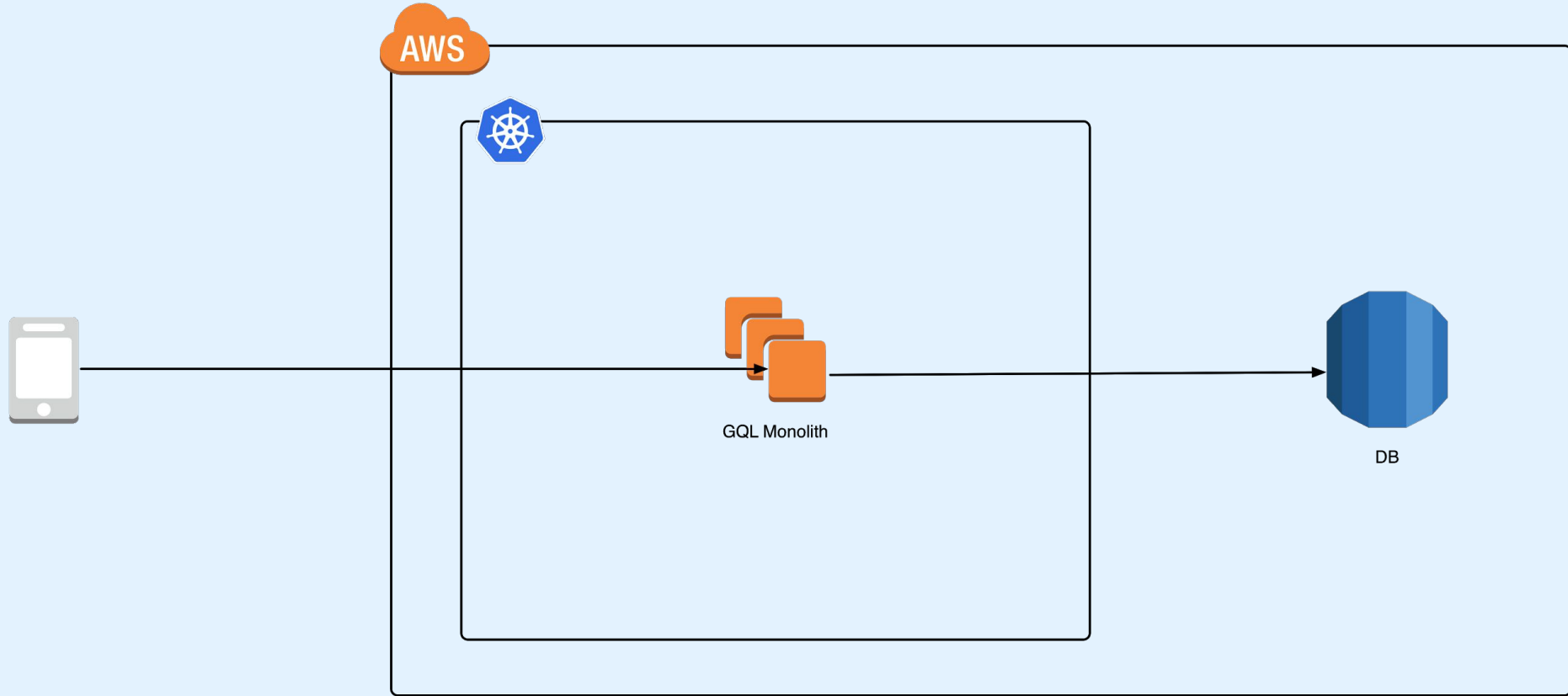
Tech Stack



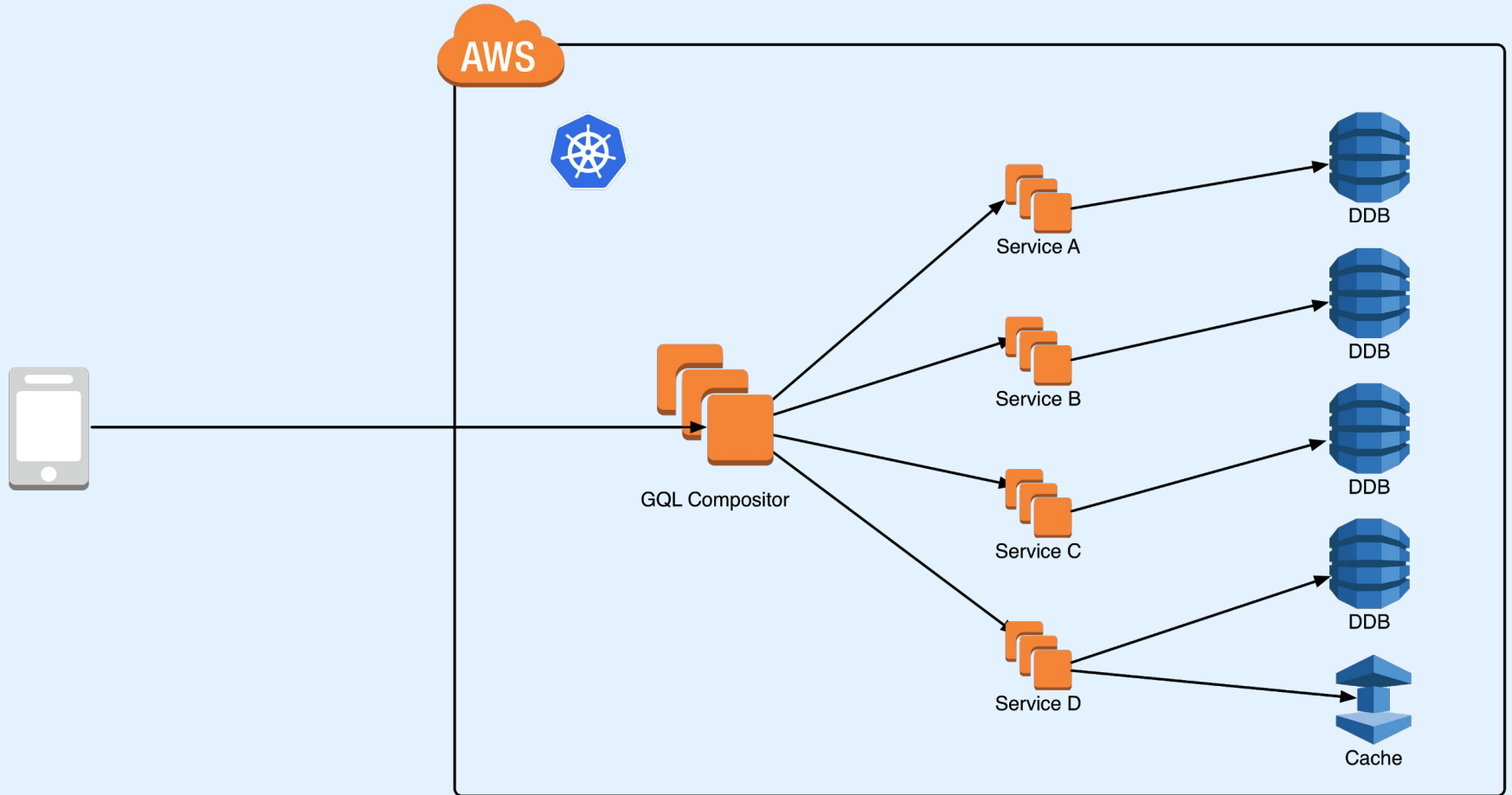


Monolith to Microservices

2016



2018





↑GRPC↓



- HTTP/2
- **One connection** per service
- **Multiplexing**
- **Protobuf Schema** for request/response

```
https://service.local/v1/user/${user_id}/edit  
{ username: 'ben' }
```

```
https://service.local/game/edit  
{ game_id: $game_id, status: 'complete' }
```

```
service UserService {  
    rpc Edit(EditUserRequest) returns (UserResponse);  
    ...  
}
```

```
message EditUserRequest {  
    string id = 1;  
    string username = 2;  
}
```

```
message UserResponse {  
    string id = 1;  
    string username = 2;  
    string token = 3;  
}
```


GRPC @ Just Football



- Protobuf's lived with the service
- Schema + Clients published
- TypeScript definitions

Still some problems

- Hard to understand the system
- gRPC load balancing

The background features a complex geometric pattern composed of numerous triangles in various shades of blue and green, creating a tessellated effect. The triangles are arranged in a way that they interlock, with some pointing upwards and others downwards. The colors range from light, airy blues to deeper, more saturated blues and greens. The overall effect is a modern, abstract design.

Linkerd

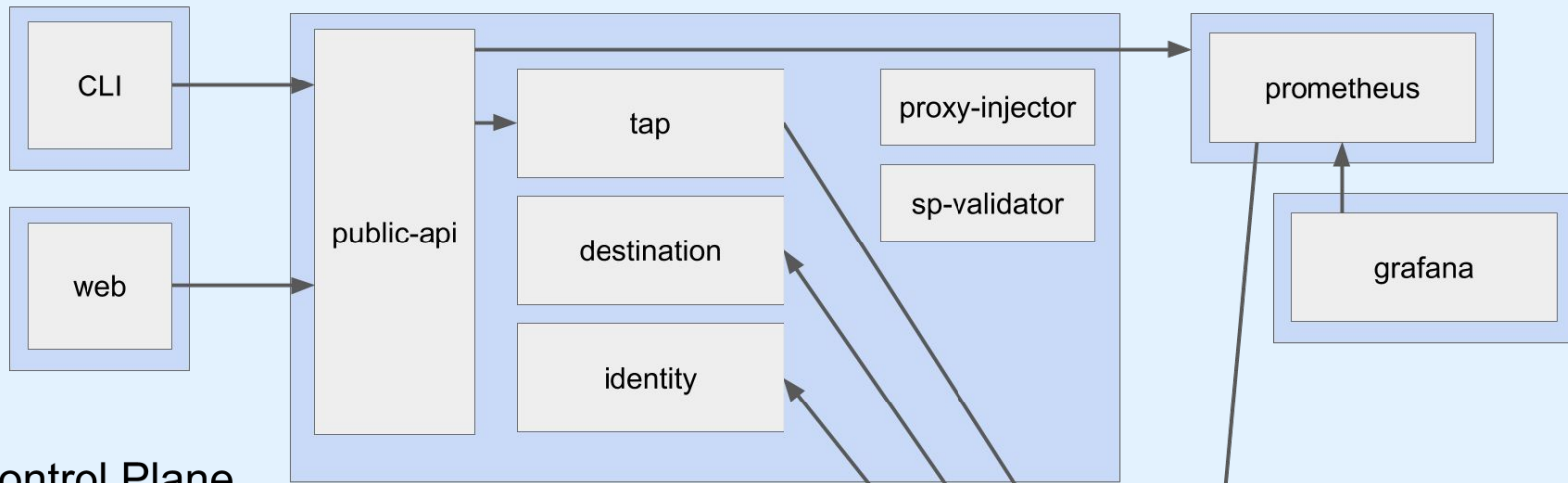


An open source *service mesh* and
CNCF member project.

- 🔥 24+ months in production
- 🔥 3,000+ Slack channel members
- 🔥 10,000+ GitHub stars
- 🔥 100+ contributors

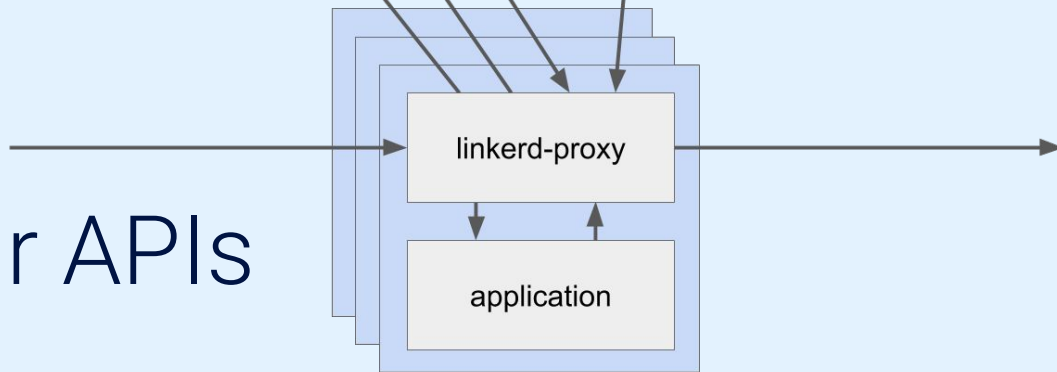


controller



Control Plane

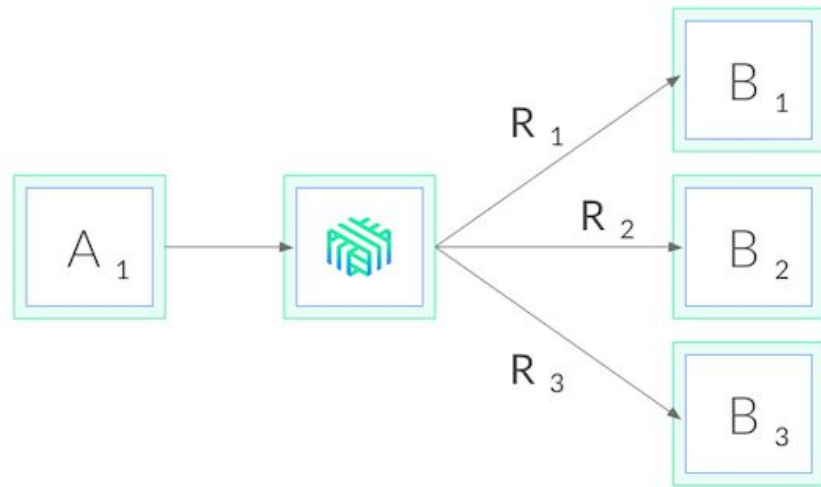
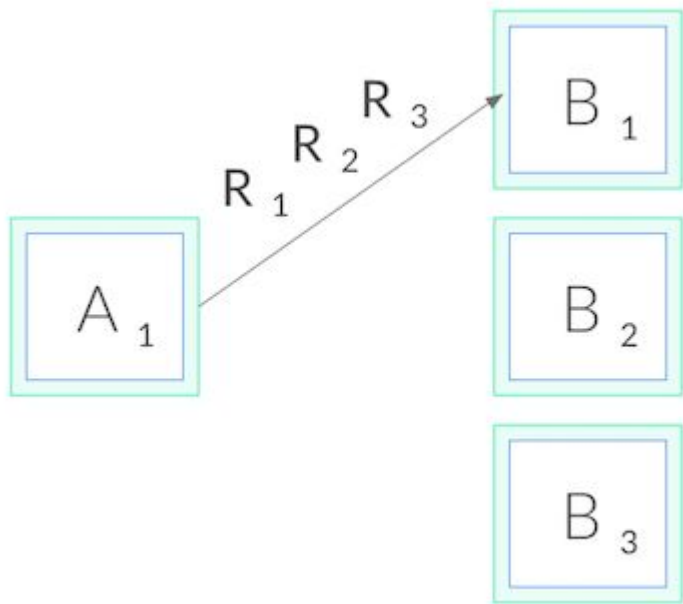
Data Plane



Linkerd ❤️ your APIs



Request level load-balancing

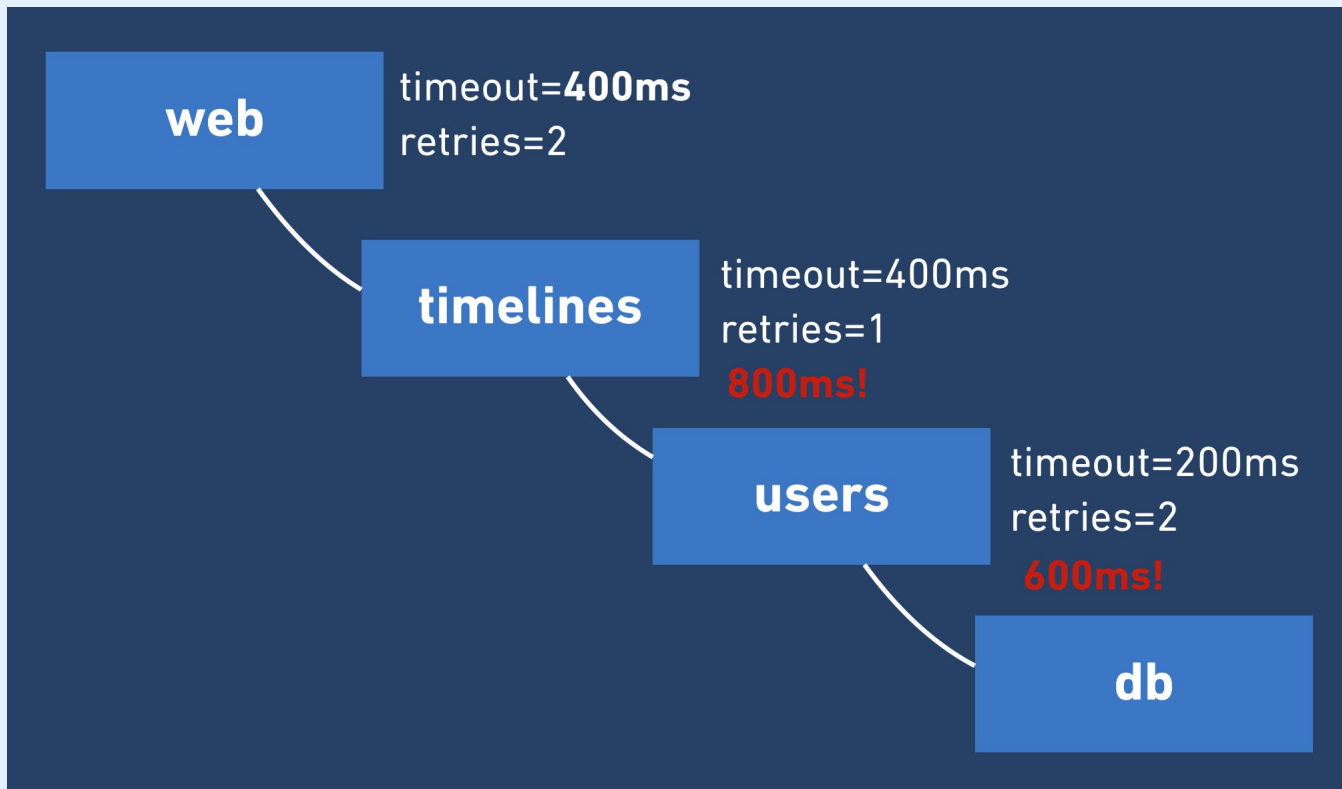


Application-aware observability

```
$ linkerd routes svc/voting-svc -n emoji voto
```

ROUTE	SUCCESS	RPS	P50	P99
Vote100	100.00%	0.2rps	8ms	20ms
VoteBalloon	100.00%	0.1rps	8ms	10ms
VoteBulb	100.00%	0.1rps	15ms	20ms
VoteCat2	100.00%	0.1rps	1ms	10ms
VoteDoughnut	0.00%	2.5rps	2ms	19ms
VoteFire	100.00%	0.2rps	2ms	10ms
VoteFlushed	100.00%	0.2rps	2ms	10ms
VoteGhost	100.00%	0.1rps	4ms	20ms

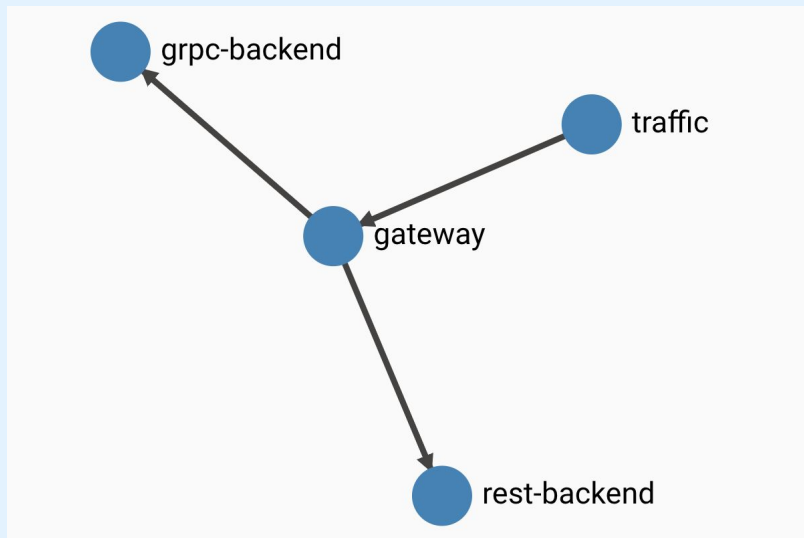
Centralized client configuration





Demo Time

Demo overview



- *Kubernetes*, runs our application
- *gRPC*, service-to-service communication
- *Linkerd*, provides metrics and reliability
- *Prometheus*, by way of Linkerd
- *Grafana*, by way of Linkerd
- *Building Blocks*, builds a sample app
- *Slow Cooker*, sends traffic

Full demo available at github.com/klingerf/grpc-linkerd-demo

Demo recap

Deployed gRPC app with Linkerd

Verified distributed load to gRPC backend

Dug into gRPC-specific stats provided by Linkerd

Checked out the Linkerd dashboard

Applied client policy to a gRPC route



+



LINKERD

Thank you!



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slack.linkerd.io: @kl