Do You Need a Service Mesh?

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Outline

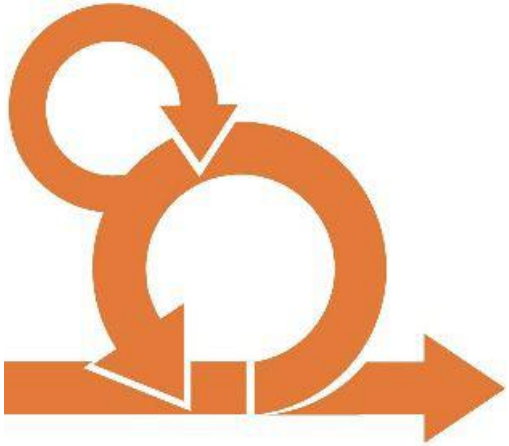
- What are we talking about this?
- How did we get here?
- What is a Service Mesh anyway?
- Demo!
- What can a Service Mesh do?
- Common counter-arguments
- So: Do you need a Service Mesh?

Pop Quiz!

Why are we talking about this?

Business Value

- Top Line
- Bottom Line
- Time to Market & **Speed of Iteration**
- **Risk Reduction**



Break the Monolith

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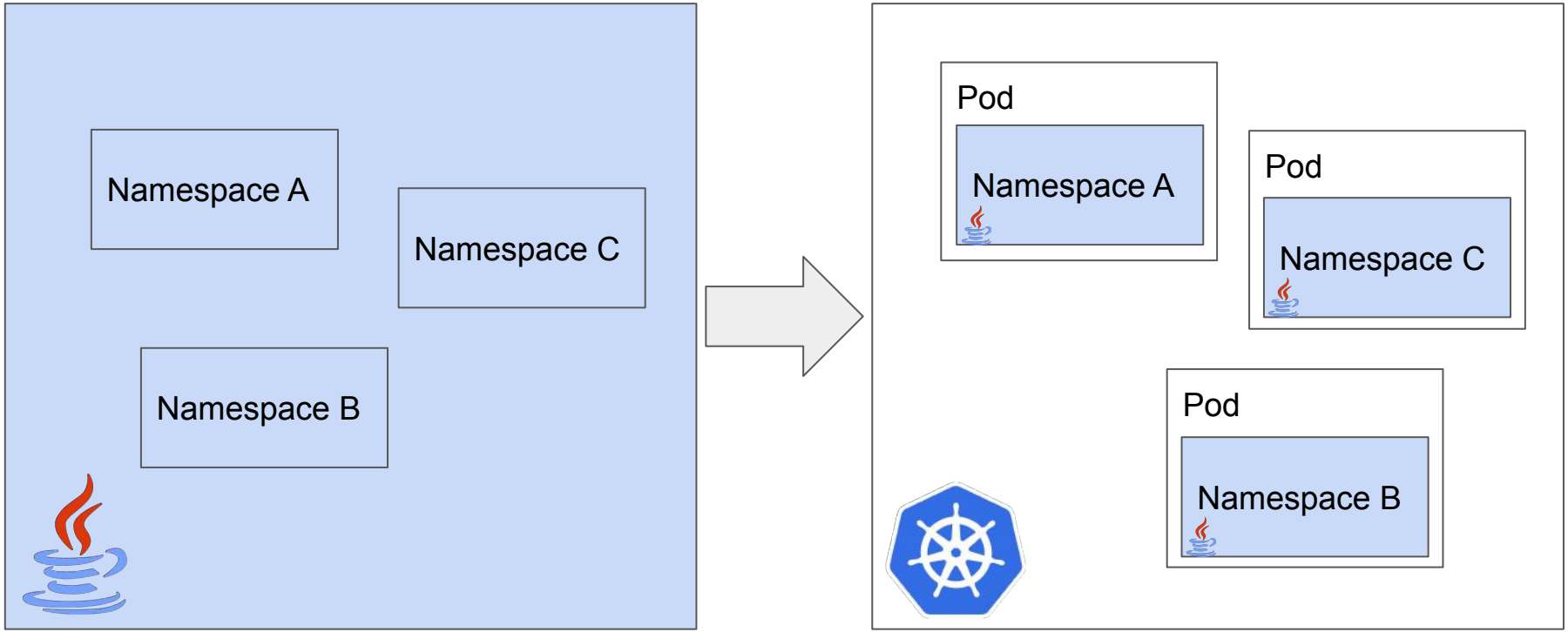
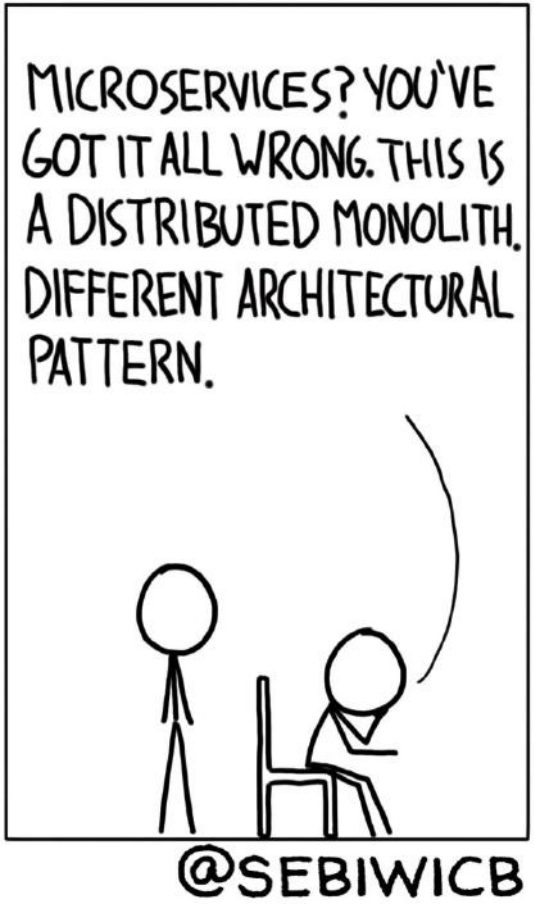
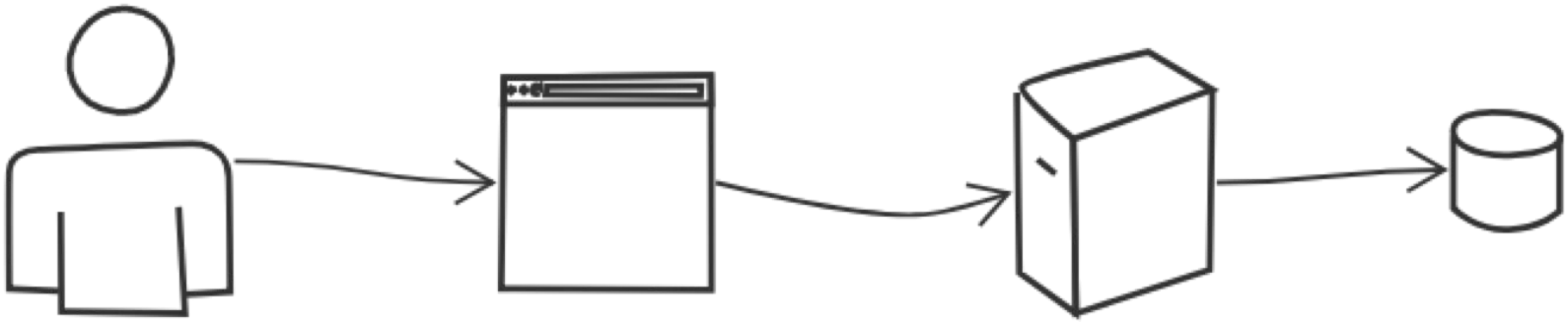
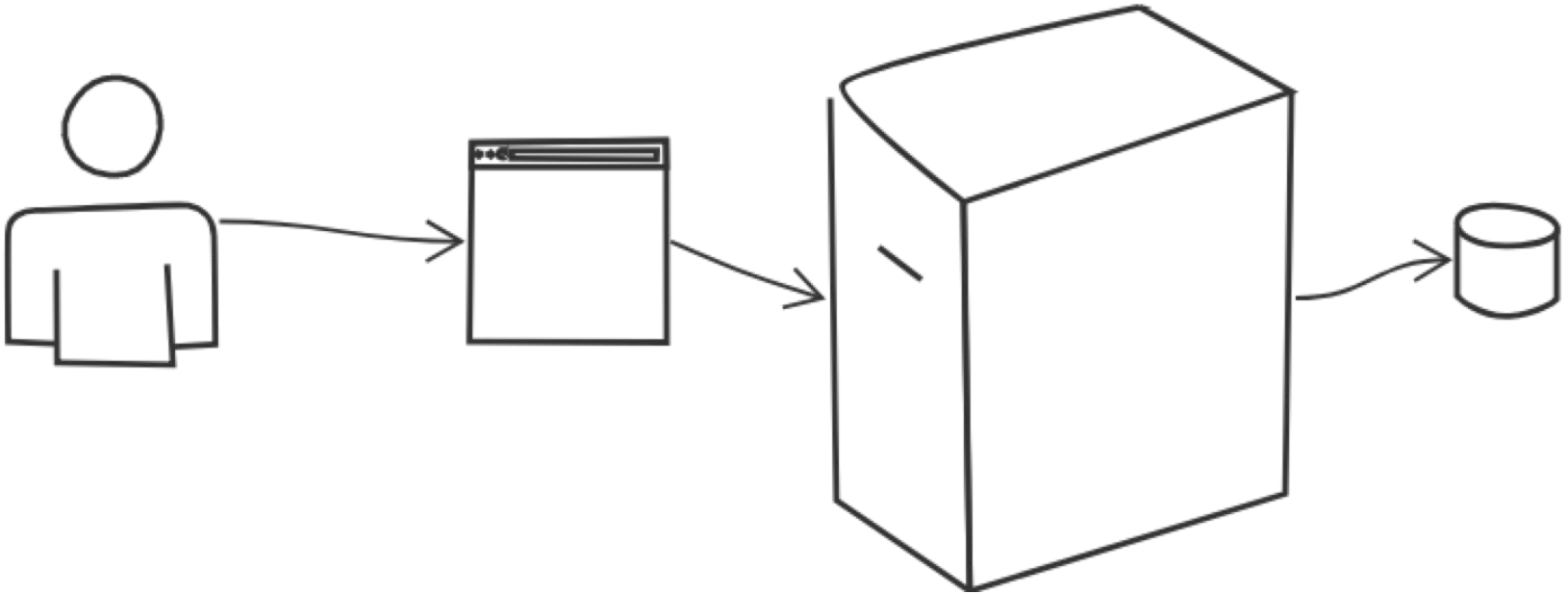


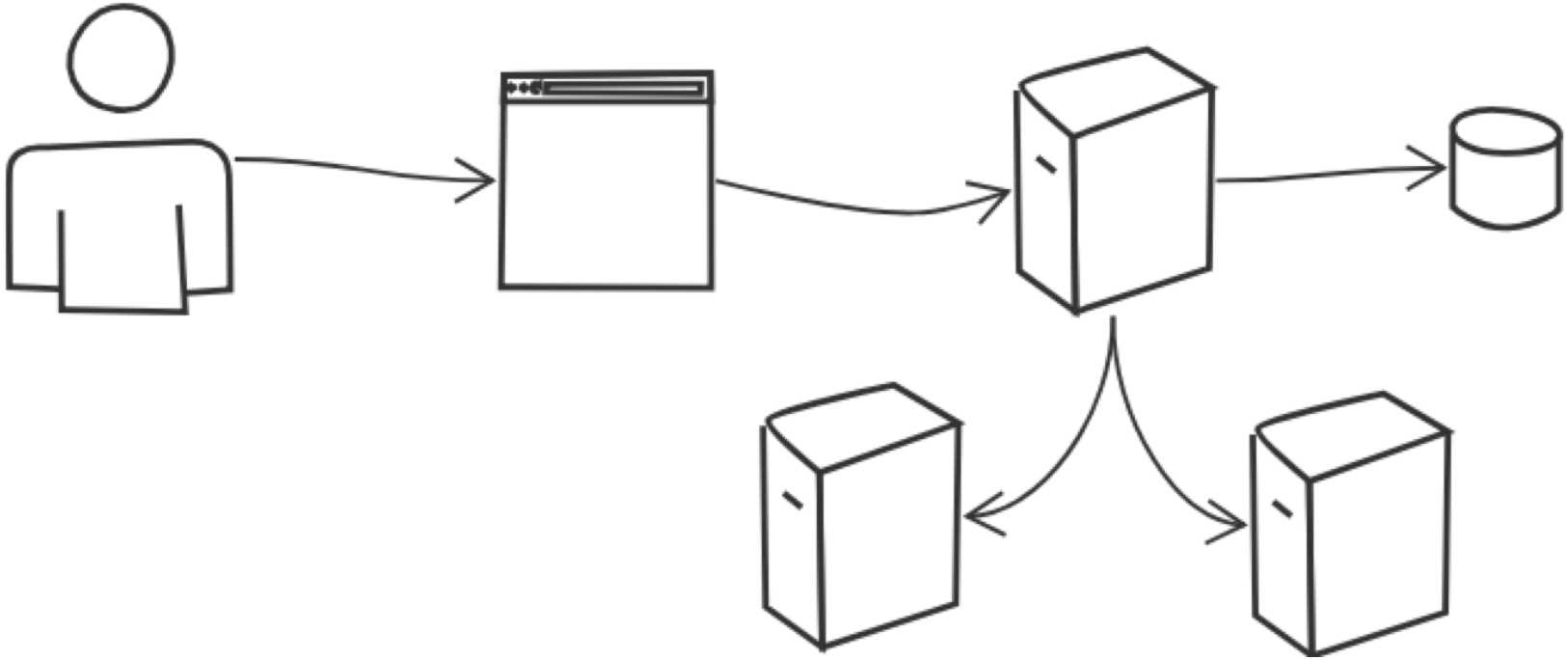
...don’t just distribute it!

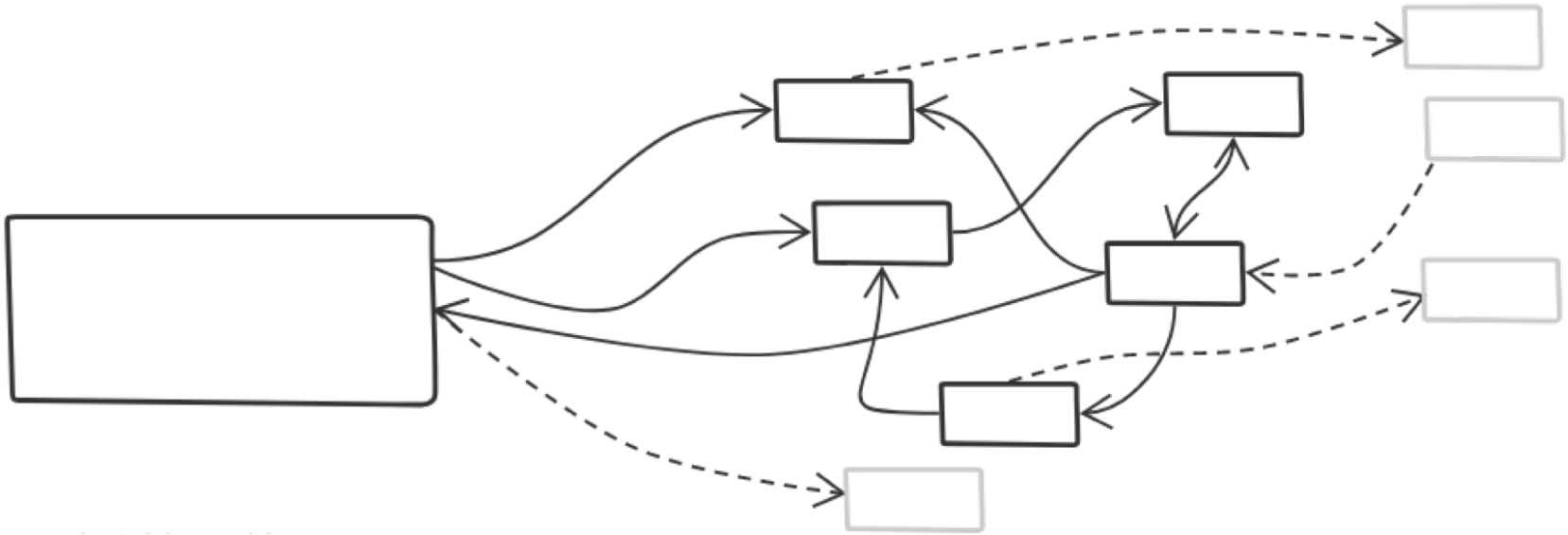


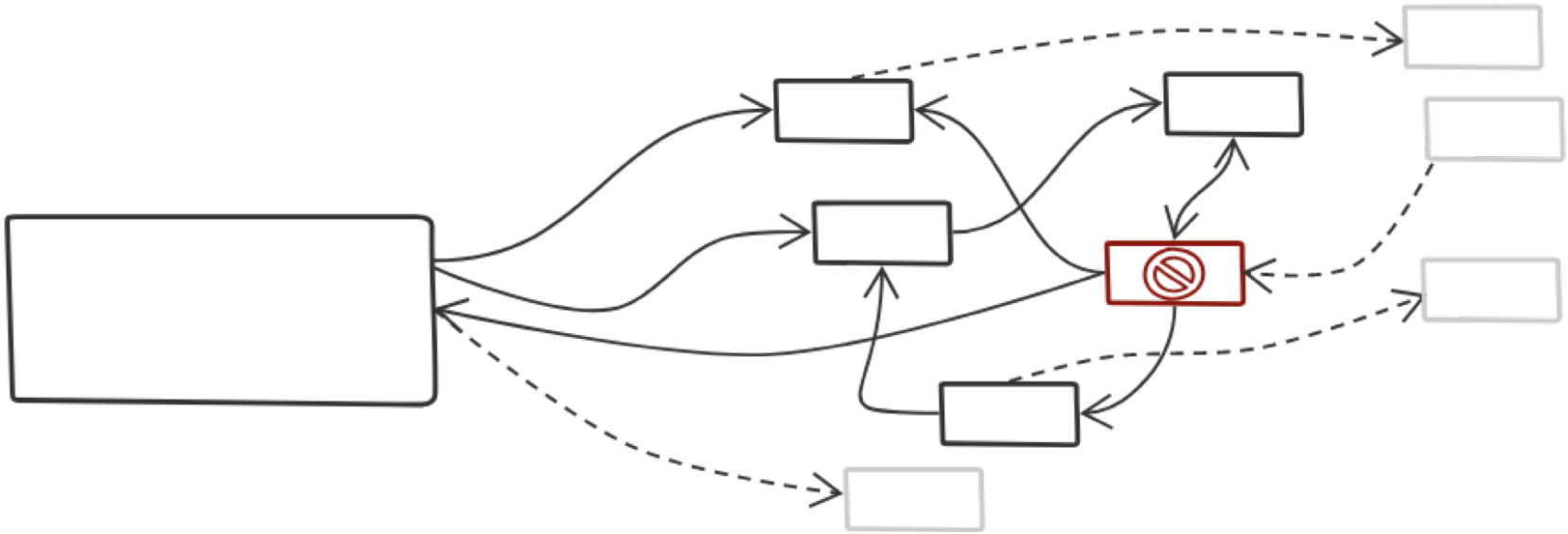
How did we get here?

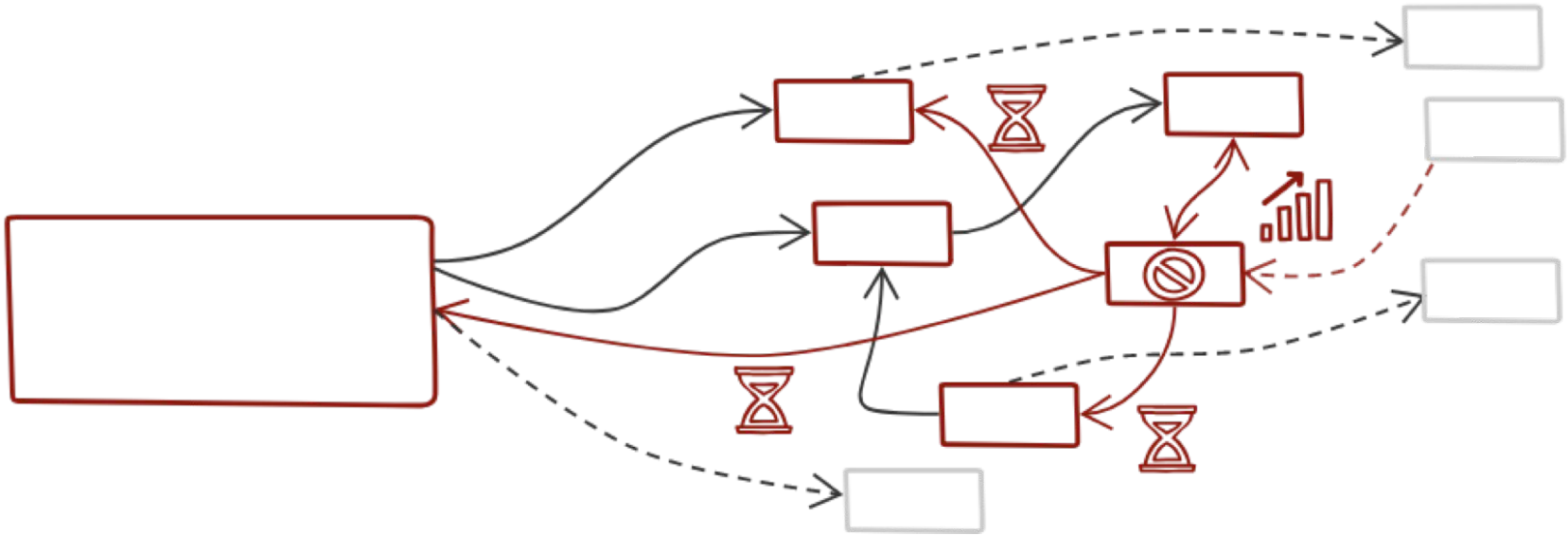




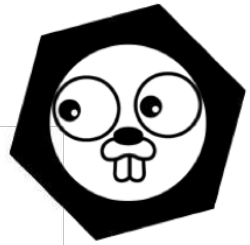




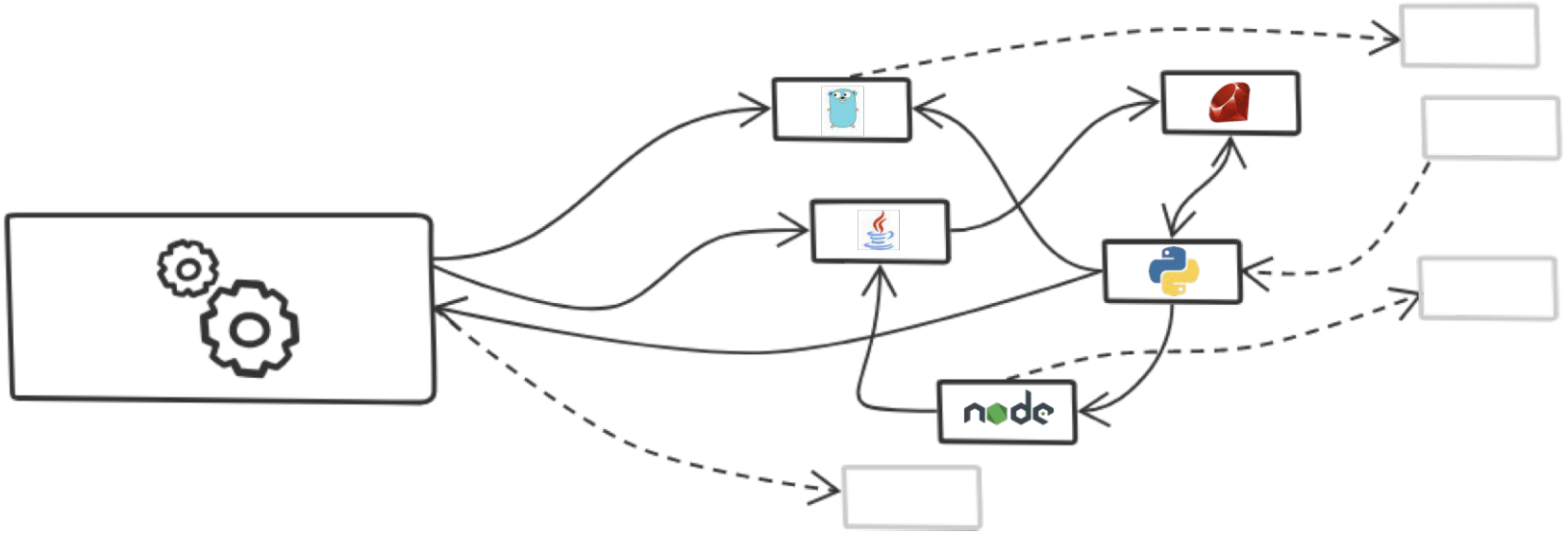




In-process libraries and frameworks



Polyglot environments



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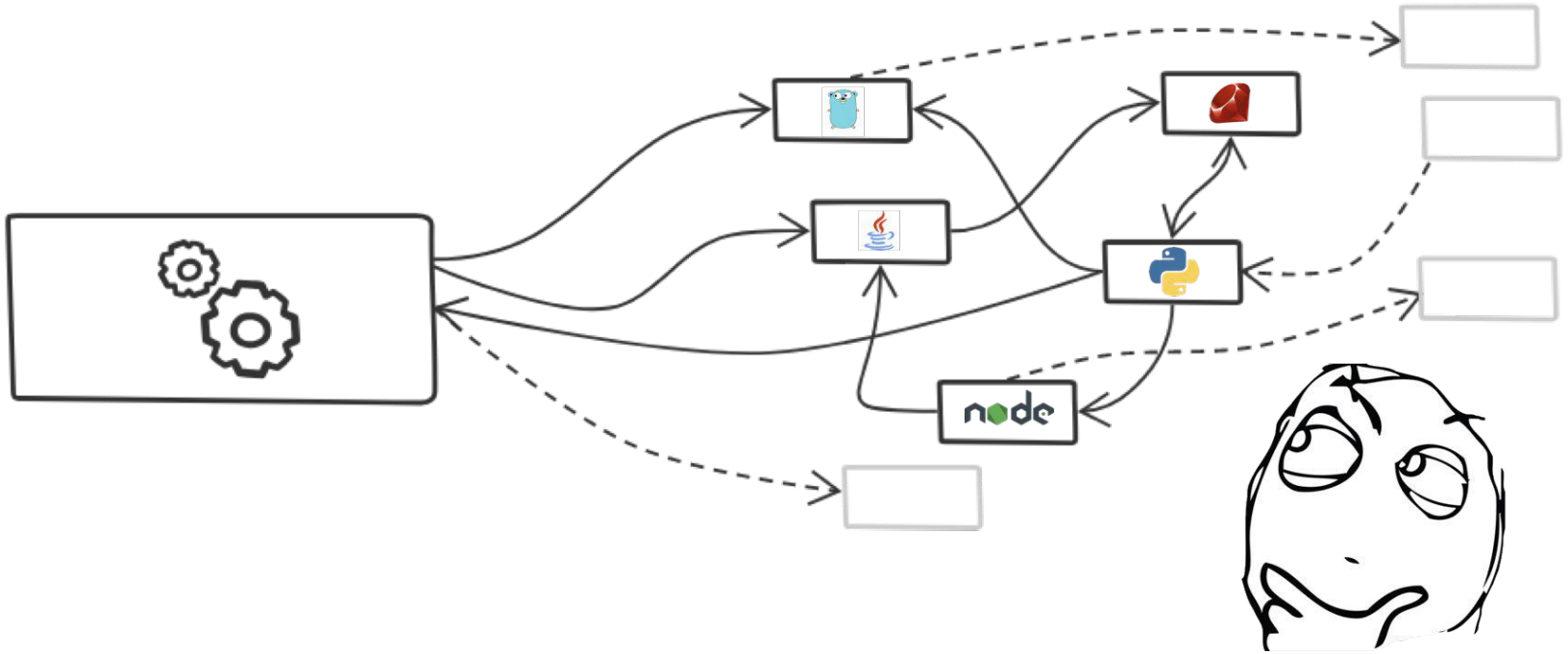

Must-have primitives

- Service Discovery
- Fault Tolerance
  - Circuit breakers
  - Back pressure
- Observability
  - Logging
  - Metrics
  - Tracing

We also got here via...

Declarative Infrastructure

And declarative infrastructure

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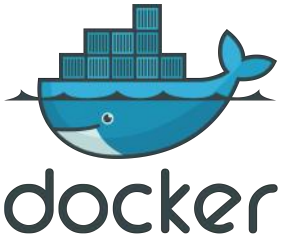
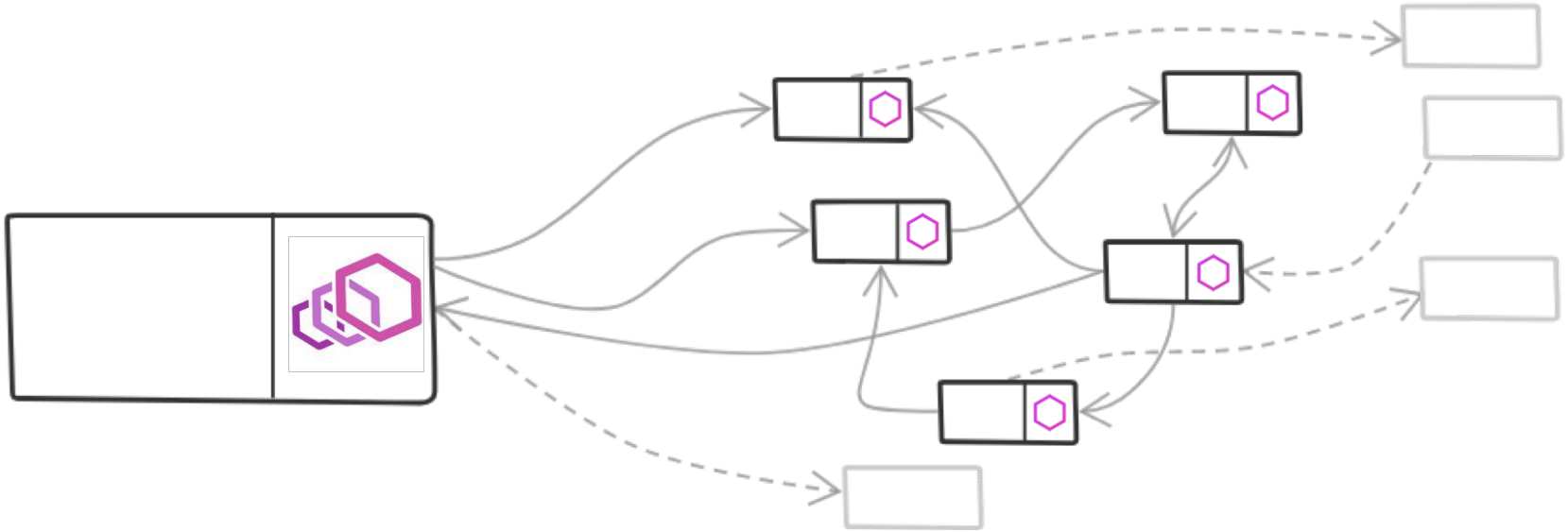


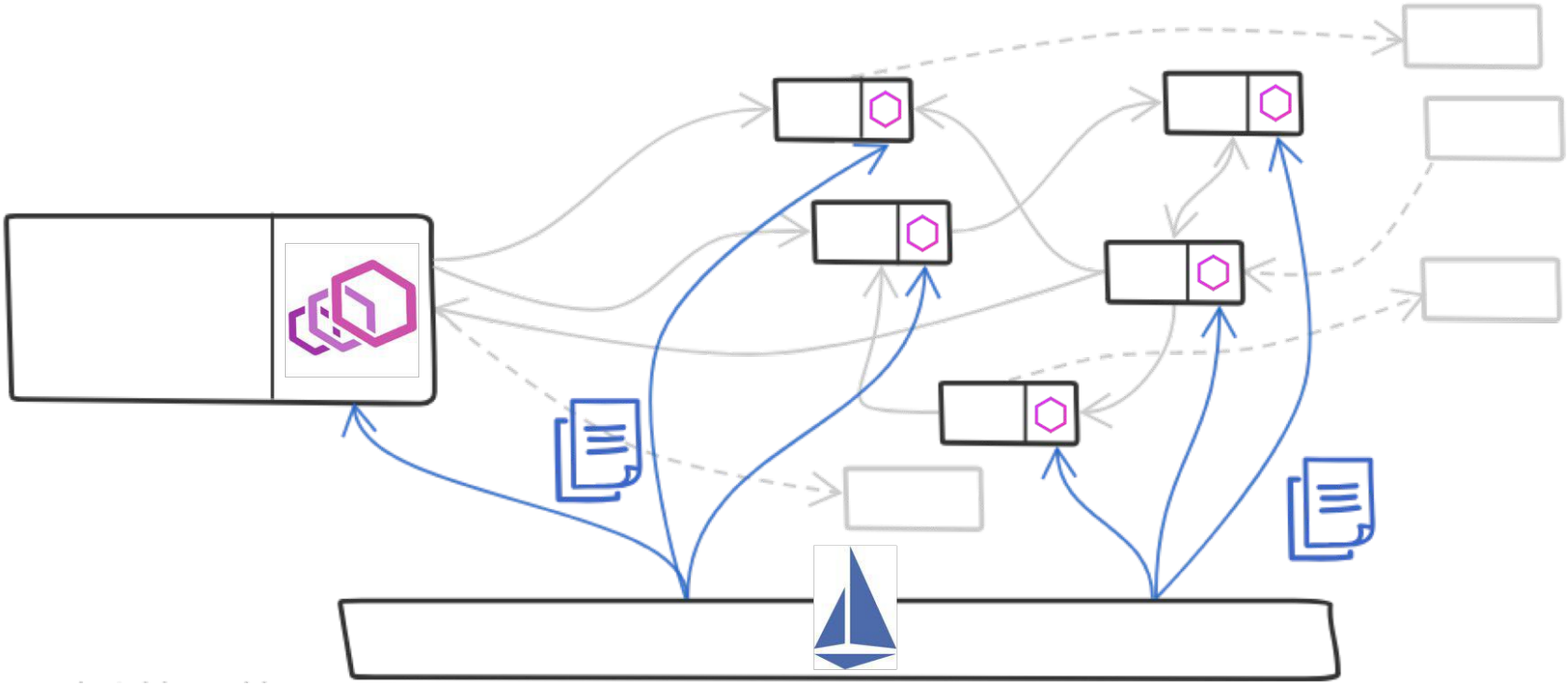
A Service Mesh is the best of both

What is a Service Mesh?

They work by adding a proxy to every service



And a control plane



Demo Time!

Pray to the demo gods...

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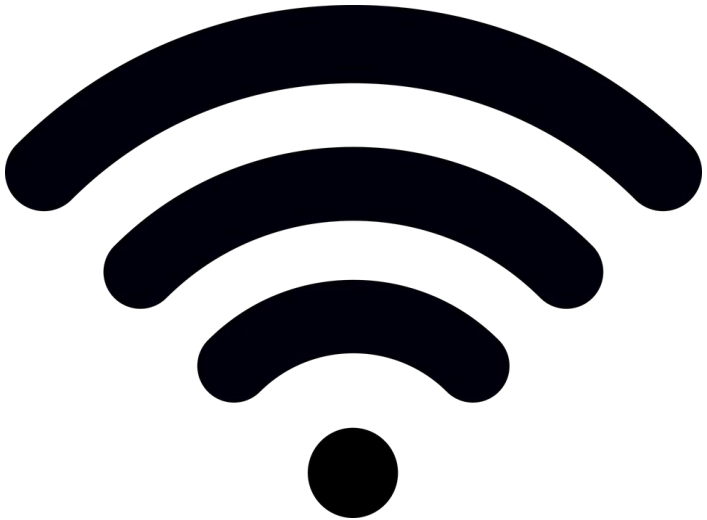
The old...



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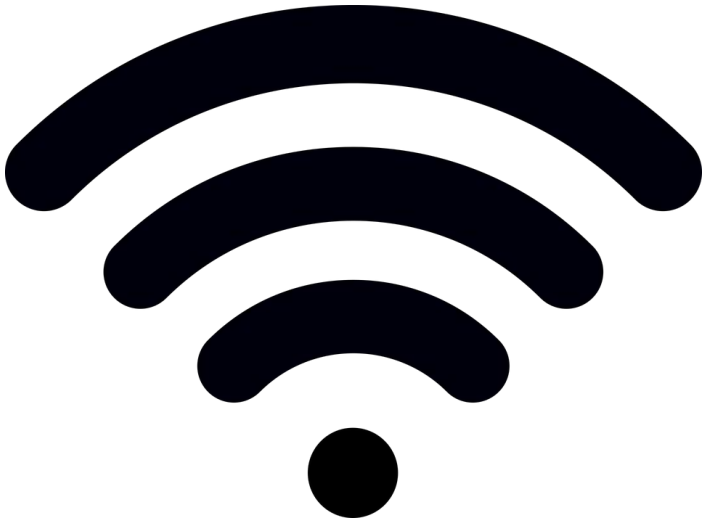
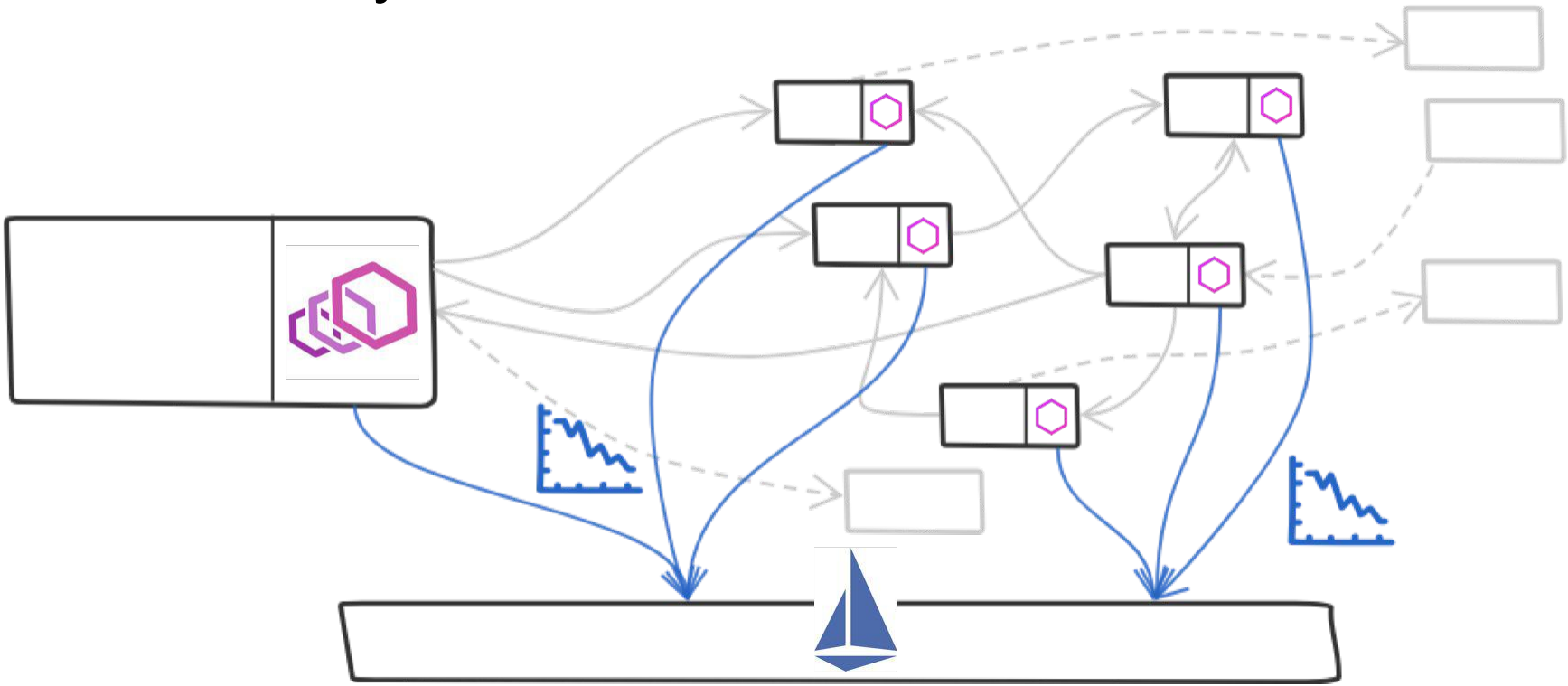


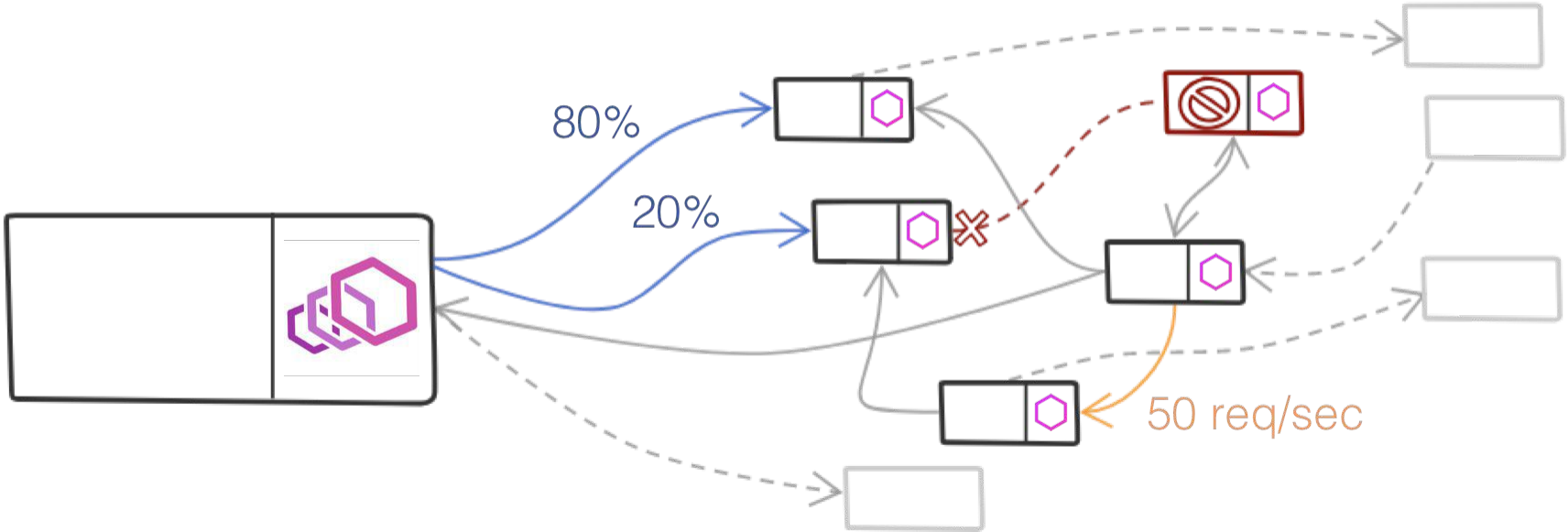
...and the new

Service Meshes can do much more

Observability



Traffic Management



Declarative Traffic Management

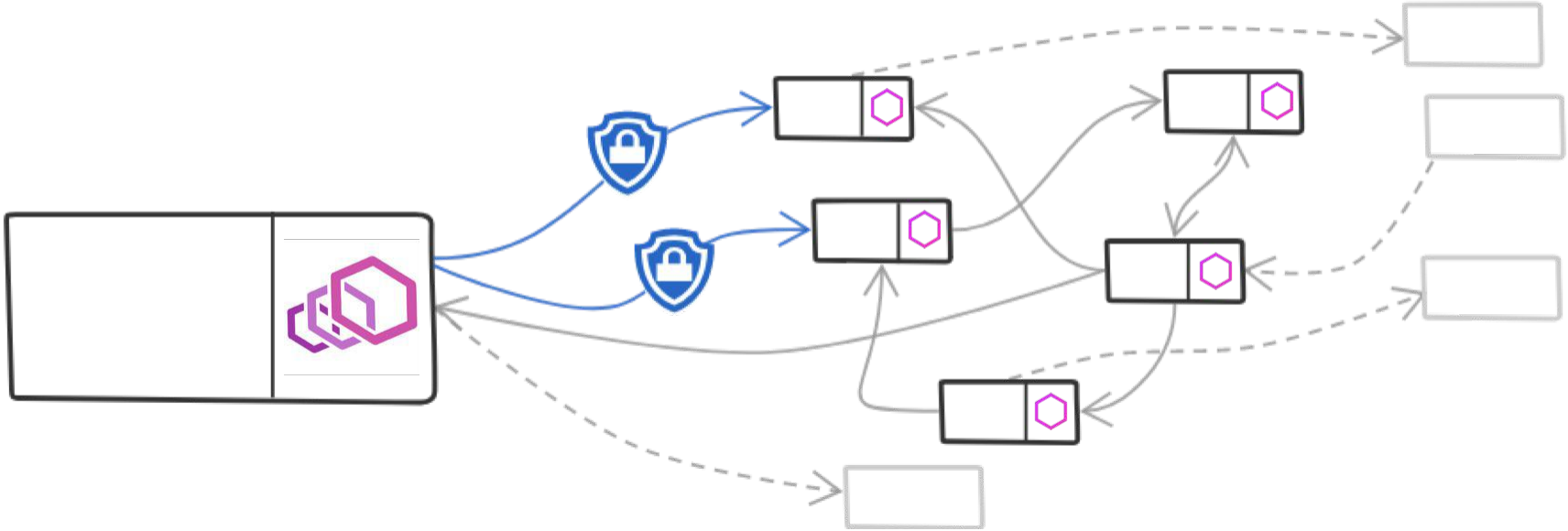
Everyone gets `reviews` v1

```
kind: VirtualService
metadata:
  name: reviews
spec:
  hosts:
  - reviews
  http:
  - route:
    - destination:
        host: reviews
        subset: v1
```

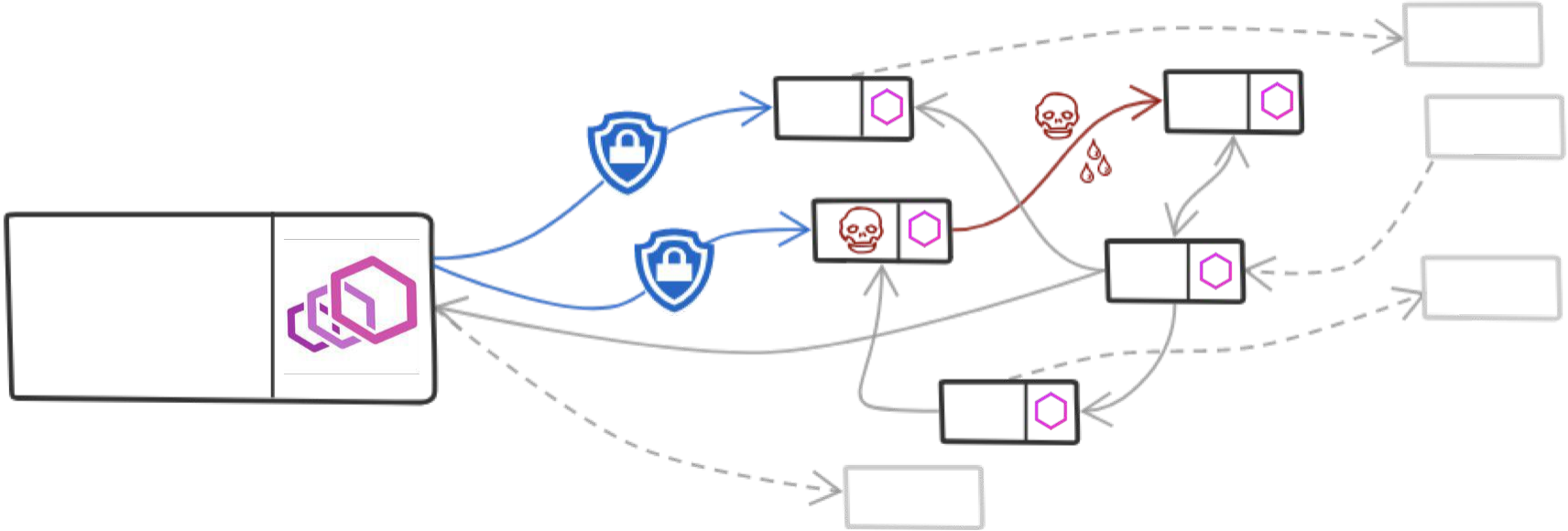
Except Jason

```
kind: VirtualService
metadata:
  name: reviews
spec:
  hosts:
  - reviews
  http:
  - match:
    - headers:
        end-user:
          exact: jason
    route:
    - destination:
        host: reviews
        subset: v2
  - route:
    - destination:
        host: reviews
        subset: v1
```

Security - ACLs



Security - mTLS



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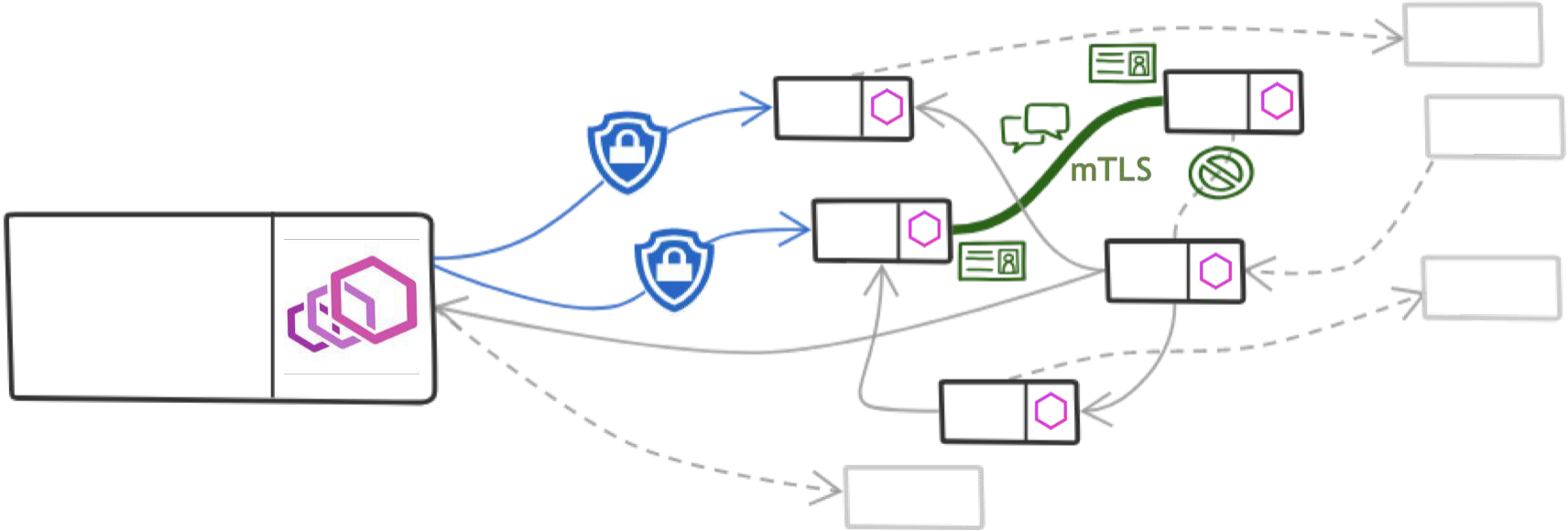


But!

But I have an Edge Proxy!

✔️ Ingress proxy

✔️ Sidecar model terminates security closer to the app

But I have an API Gateway!

✔️ Rate limiting

✔️ Access control

✔️ JWT validation

❌ OIDC

❌ Bot blocking

But I have a CDN!

Keep it

But I have a WAF!

Keep it, for now

But I have an APM system!

✔️ Logs

✔️ Metrics

✔️ Tracing

✔️ Multiple, arbitrary telemetry backends

❌ JVM, .Net CLR insight

But I have an ESB!

✔️ Retries etc

✔️ Flexible service discovery / late binding

✔️ No client/server distinction

❌ Broadcast / pubsub

So: Do you need a Service Mesh?

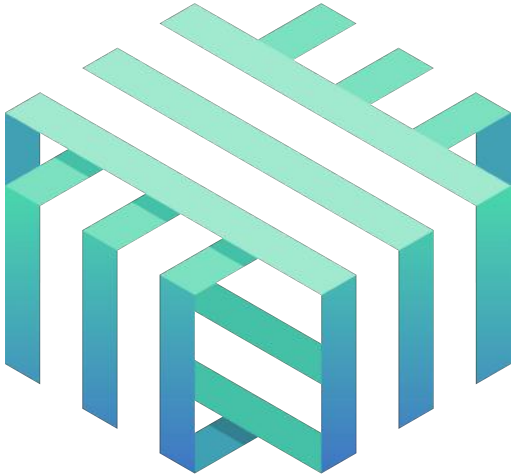
Yes!

It can help in a lot of contexts

Greenfield project	Easy and free advanced functionality
Brownfield project	Adds visibility and control
Multiple languages	No libraries to find and maintain
Old infrastructure	Unified service discovery, policy, etc
New infrastructure	Multi-cluster, multi-cloud are possible
Old services	Protocol canonicalisation, compression
Development	Advanced routing for testing
Production	Resiliency and telemetry

There are many options

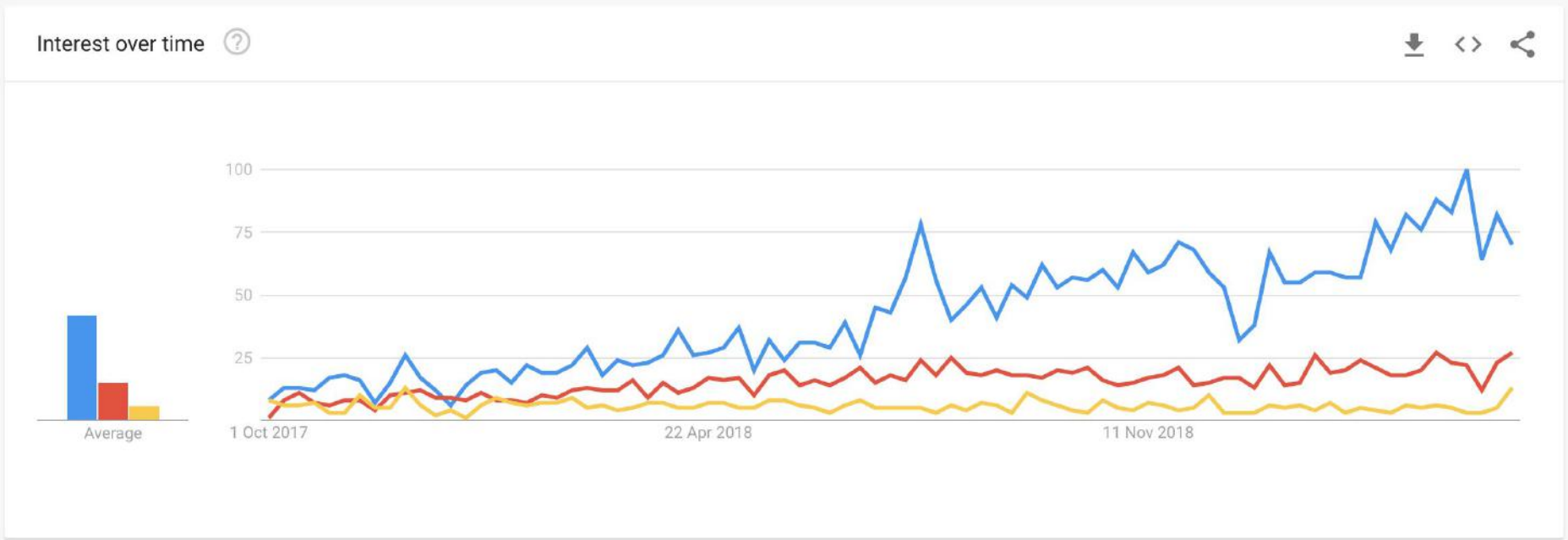
★ Star 17,242 | Fork 2,833



★ Star 3,771 | Fork 303

★ Star 15,745 | Fork 2,724

Istio has the most momentum



Istio has wide backing

Google, IBM, Lyft, RedHat, Cisco, and more

Istio and Linkerd are (quite) easy to install

WIll be managed soon

Go home and try it!

Recap

- Why were we talking about this?
- How did we get here?
- What is a Service Mesh anyway?
- Demo!
- What can a Service Mesh do?
- Common counter-arguments
- So: Do you need a Service Mesh?

Thanks!

@mt165

Slides
Videos
Demo code

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