



Understanding basics of



Mani Baradaran Hosseini
Snr Field Engineer @ Kong Inc





Agenda

- What is Envoy?
- Service Mesh
- Envoy Key Features
- Dynamic Configuration
- Envoy Key Concepts / Terminology
- Envoy Admin API
- Live Demo

What is Envoy?

- Layer 3/4 and 7 Proxy and communication bus
- Designed by Lyft for large modern service oriented architectures with following principal in mind:

"The network should be transparent to applications. When network and application problems do occur it should be easy to determine the source of the problem."

- Donated to CNCF; Now a graduated CNCF Project, adopted by as a proxy or dataplane by many products and companies.

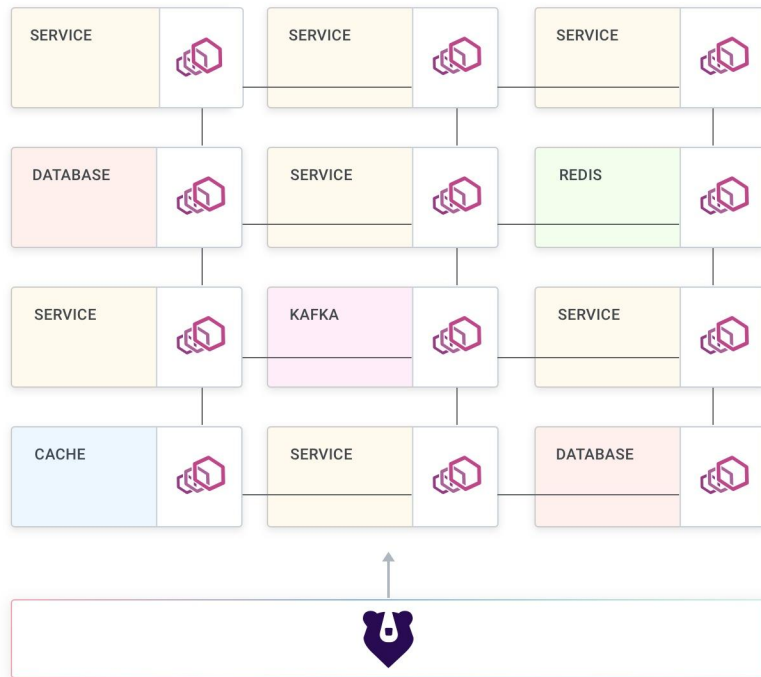


Service Mesh

A better way to implement modern networking and connectivity among the different services.

Transparently add capabilities like observability, traffic management, and security, without code modification.

It can be used to improve connectivity among every architecture and on every platform like K8s, VMs and Bare metal.

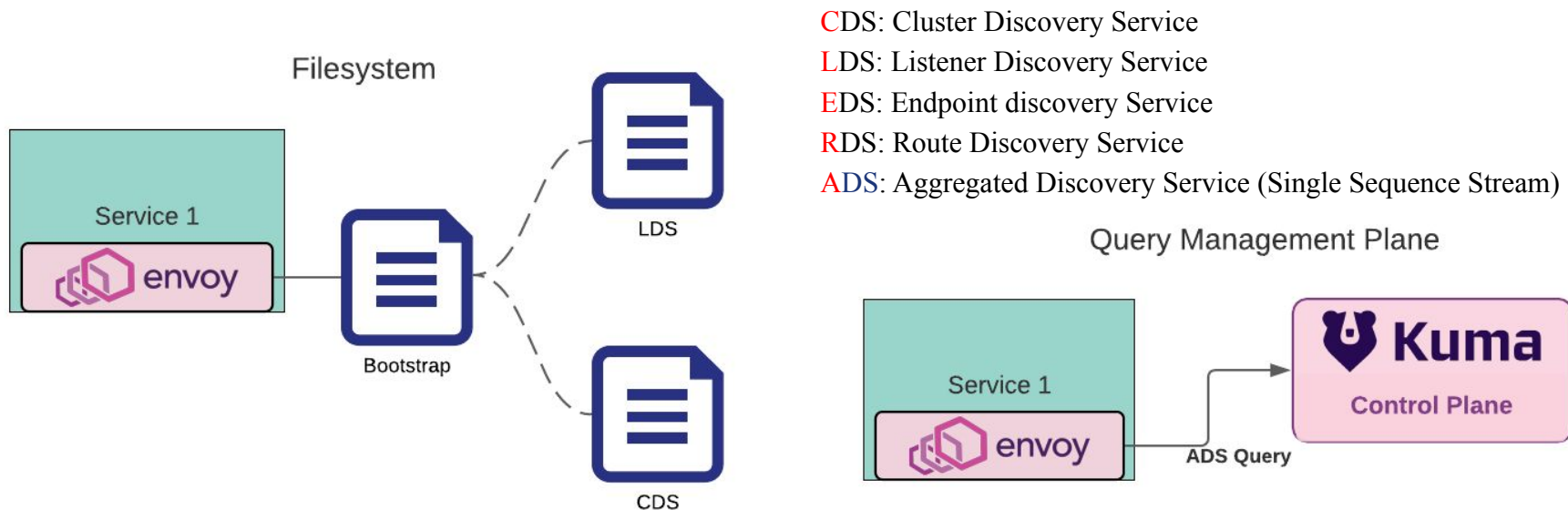




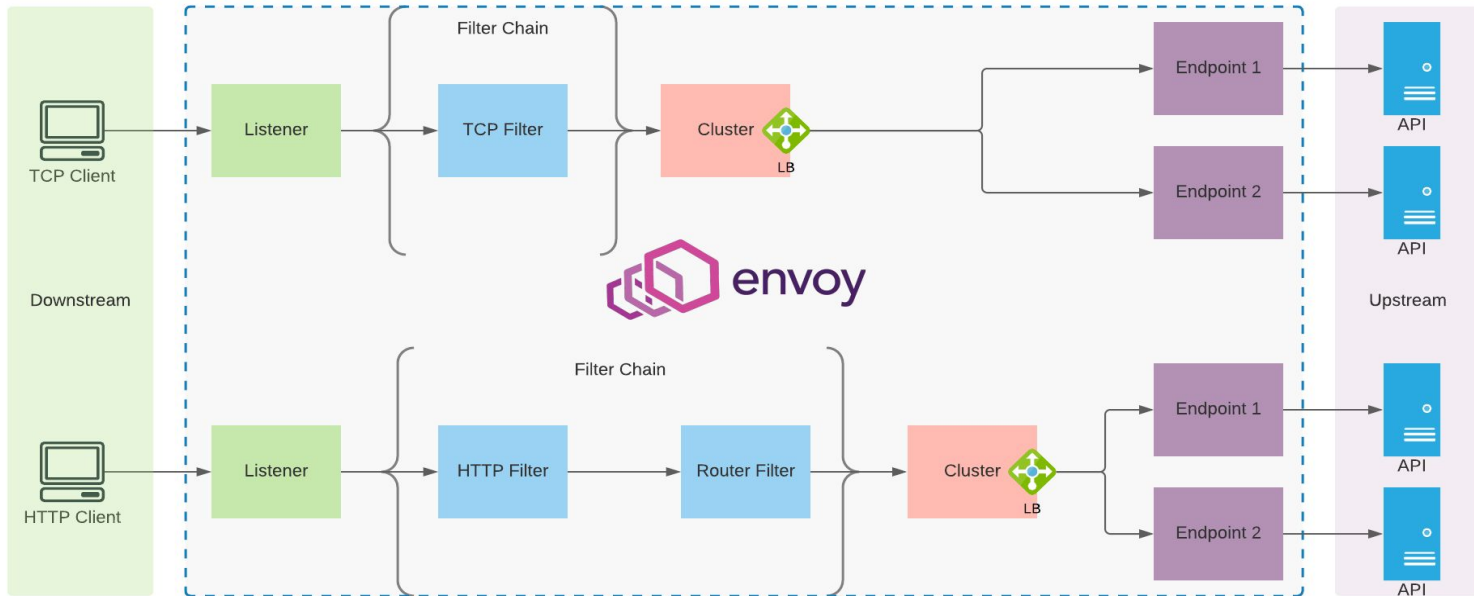
Envoy Key Features

- Lightweight, Low Latency
- Supports L3/L4 as well as L7 Proxy
- Best in class observability features.
- Offers advanced features and policies OOTB (Load Balancing, Health checking, Circuit breaking and etc)
- Supports both static and dynamic configuration + Hot restart
- Universal dataplane / Supports any Control Plane
- Support many transport protocols (TCP/UDP, HTTP1/2/3 , gRPC and more)

Dynamic Configuration - xDS Services



Envoy Key Concepts / Terminology





Envoy Admin API

Some of Admin API endpoints:

- GET /clusters
- GET /listeners
- GET /config_dump
- GET /stats (json, prometheus formats)
- GET&POST /logging

For complete list please refer to the documentation:

<https://www.envoyproxy.io/docs/envoy/latest/operations/admin#operations-admin-interface-clusters>

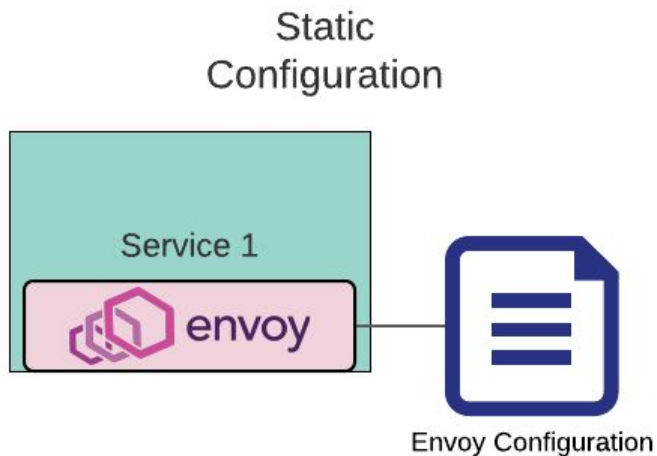


Useful 3rd party Libraries & Tools

- Docker Compose - <https://docs.docker.com/compose/>
- curl - <https://github.com/curl/curl>
- jq - <https://stedolan.github.io/jq/>
- gron - <https://github.com/tomnomnom/gron>
- H2load - <https://nghttp2.org/documentation/h2load.1.html>

Demo 1 - Static Configuration

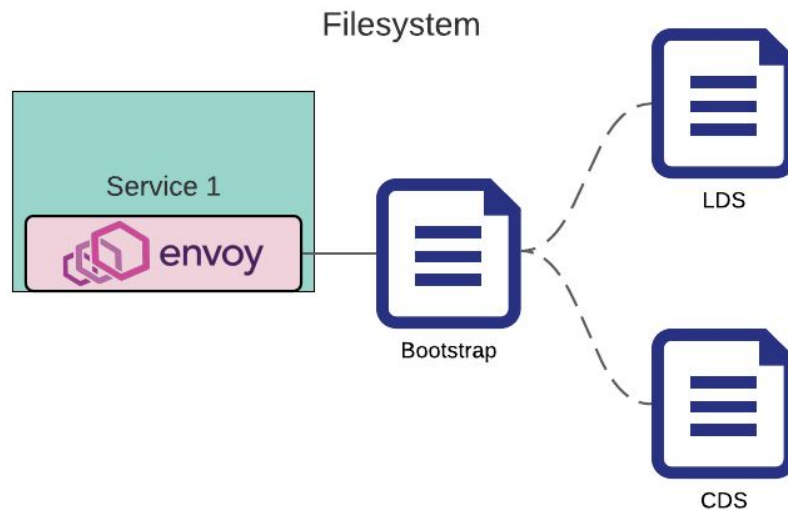
- Envoy static configurations
- Admin endpoints
- Envoy Layer 4 and 7 capabilities



Demo 2 - Dynamic Configuration

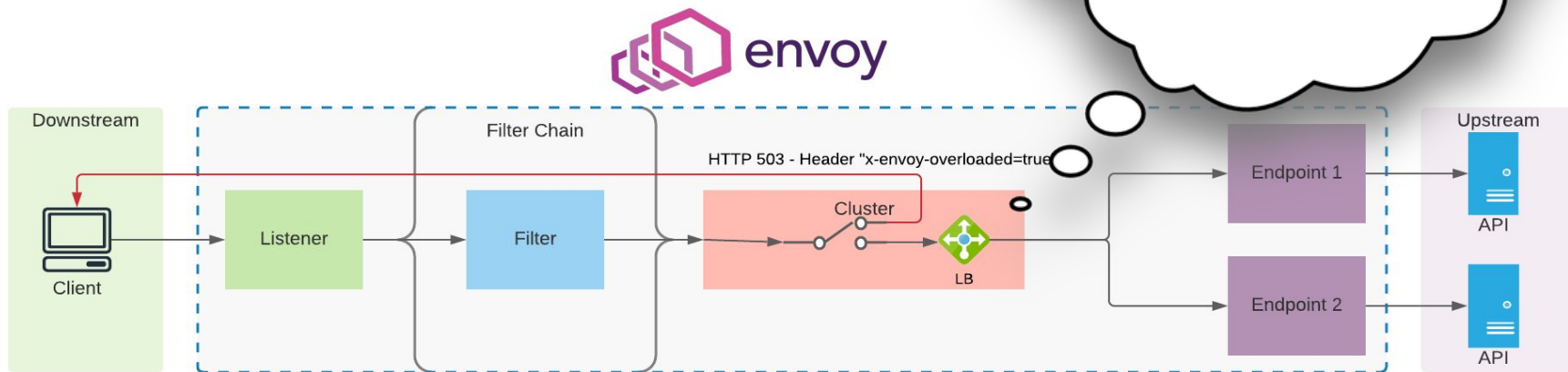
LDS: Listener Discovery Service

CDS: Cluster Discovery Service



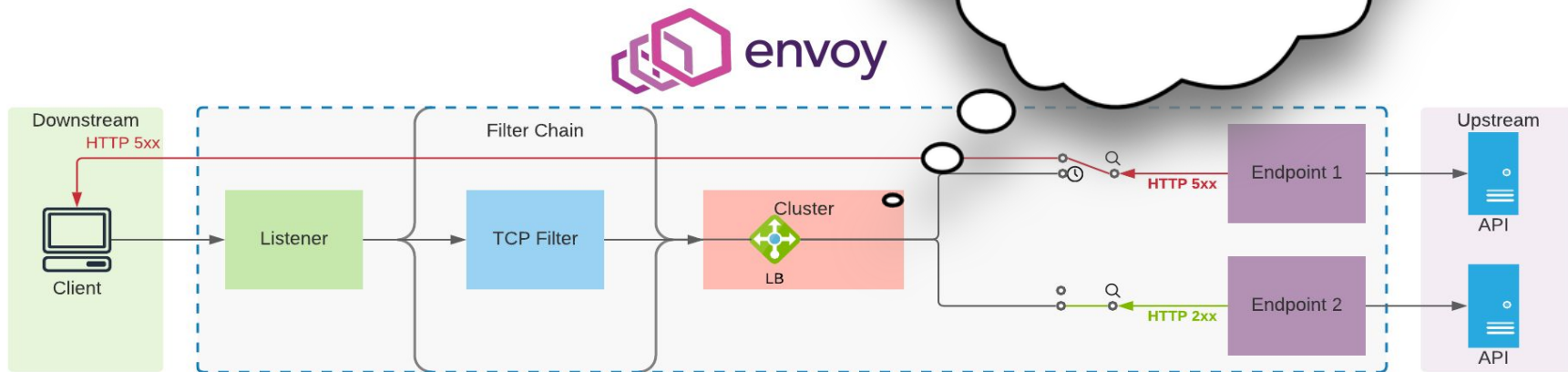
Demo 3 - Circuit breaker

circuit_breakers:
thresholds:
- max_connections: 1
max_requests: 1



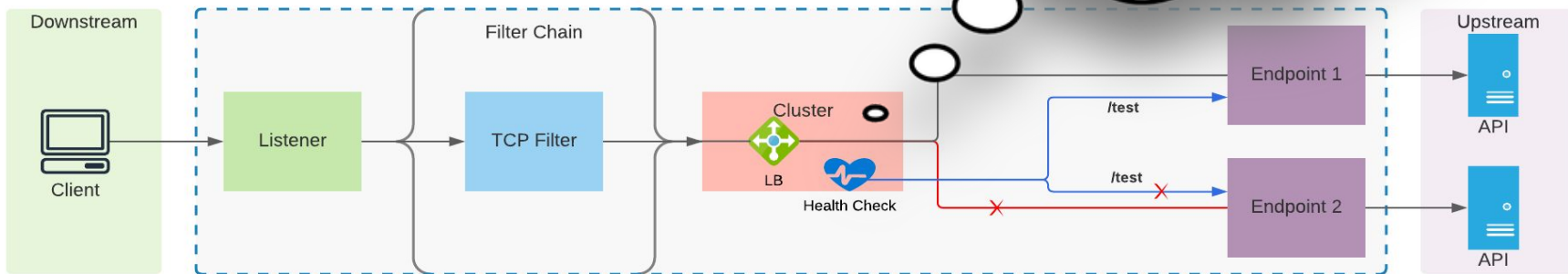
Demo 4 - Outlier Detection

outlier_detection:
consecutive_5xx: "2"
base_ejection_time: "60s"



Demo 5 - Active Health Check

health_checks:
- interval: 10s
unhealthy_threshold: 1
healthy_threshold: 2
http_health_check:
path: "/get"
expected_statuses: 200





All Contents are Shared in Github

<https://github.com/manibh/envoy-mesh-cncf>

Thank You

