Micro Service Architecture For Start Up

DanielTimLee
danieltimlee@dbrain.science

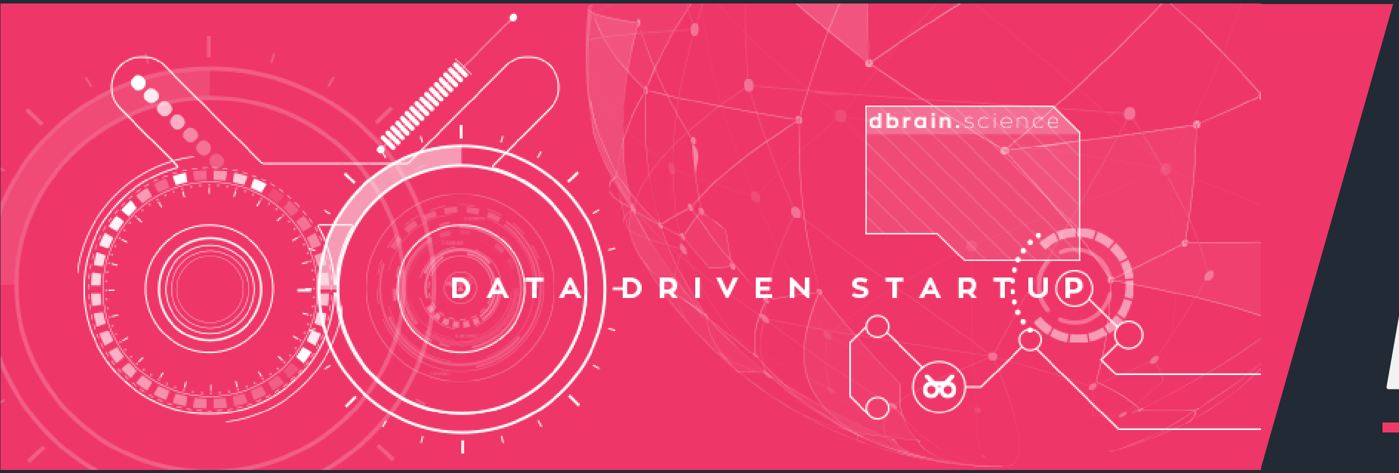
Speaker

Daniel T. Lee

이호연

- D - Brain Science - Now
- Yourssu Community - Formerly Developer Chief
- SW Maestro 7th - Technical Certifier

Company



D Brain Science

- 2017.09 Established
- Data Driven Start-Up
- AD-Tech, Legal-Tech, Chat-Bot ..

Disclaimer

Based on Start-up`s point of view

Agenda

1. Microservice & API Gateway

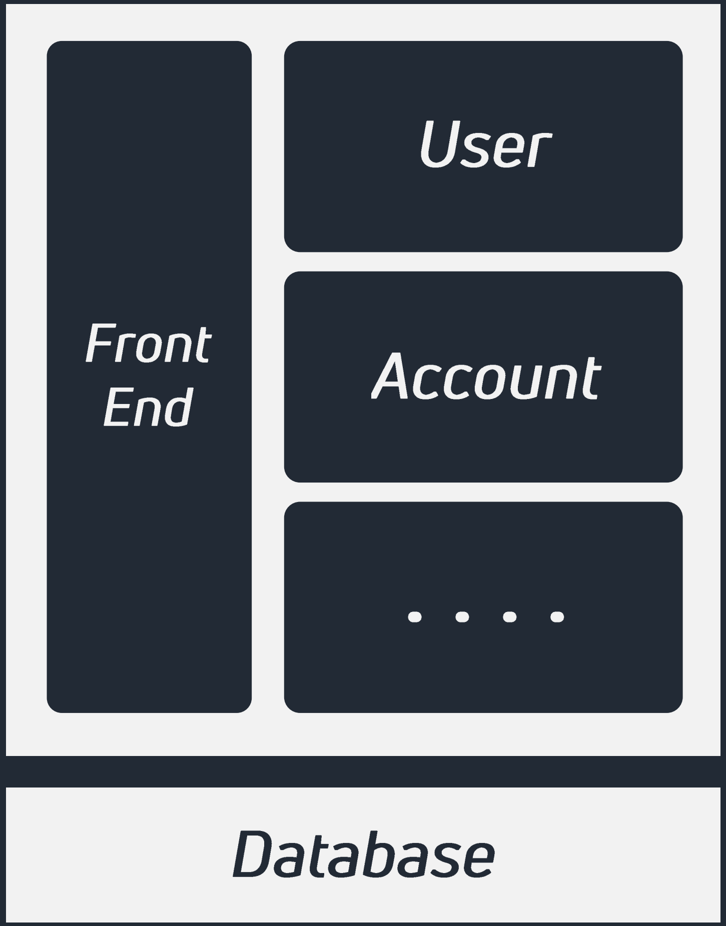
2. Our Situation?

3. How I met Kong

4. How we`re using Kong?

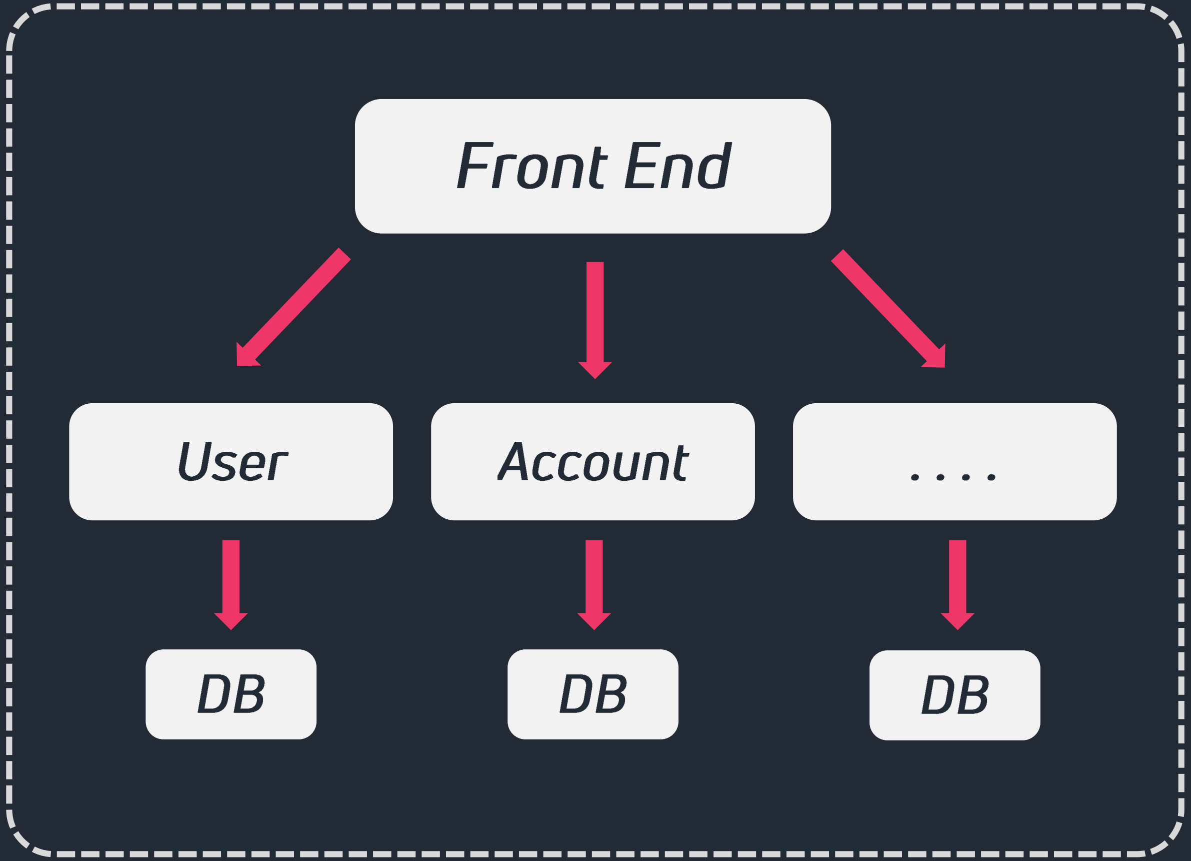
1. Microservice & API Gateway

Monolithic



- All Business logic in One
- One data store
- Horizontal scale

Microservice



- Separated Business logic
- Each data store
- Vertical scaling

Pros / Cons

Monolithic

Pros

- Simple architecture
- Easy to manage

Cons

- Hard to modify
- Heavy deployment

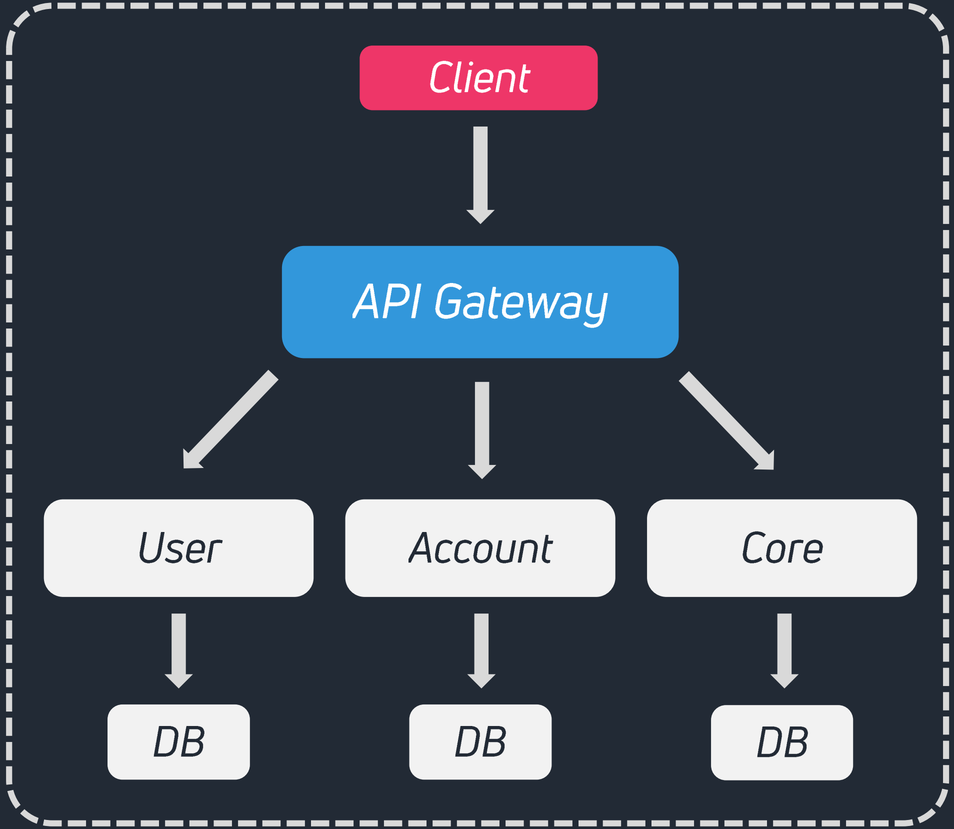
Micro Service

- Easy service Dev
- Lightweight DevOps

- Hard to test / debug
- Many manage point

What about
API Gateway

API Gateway



- Single entry point for API
- Middleware for API
  - *Authentication*
  - *Security*
  - *Traffic*
  - *Logging*

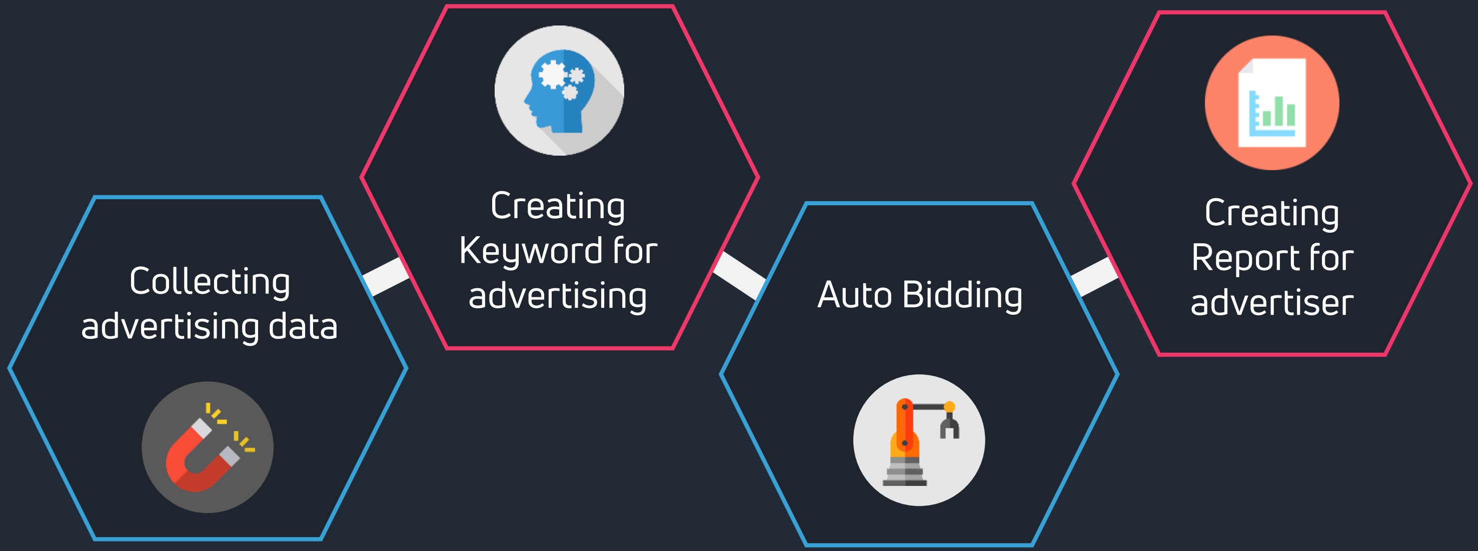
Think of an Orchestra

2. Our Situation?

Use-Case

Kaiser

Keyword Ad Intelligent Supporter



Collecting advertising data

Creating Keyword for advertising

Auto Bidding

Creating Report for advertiser

Data-based Keyword AD automation

Problem?

What architecture do we need?

Our Situation

- *Product is Complicated*

  Each Parts works individually

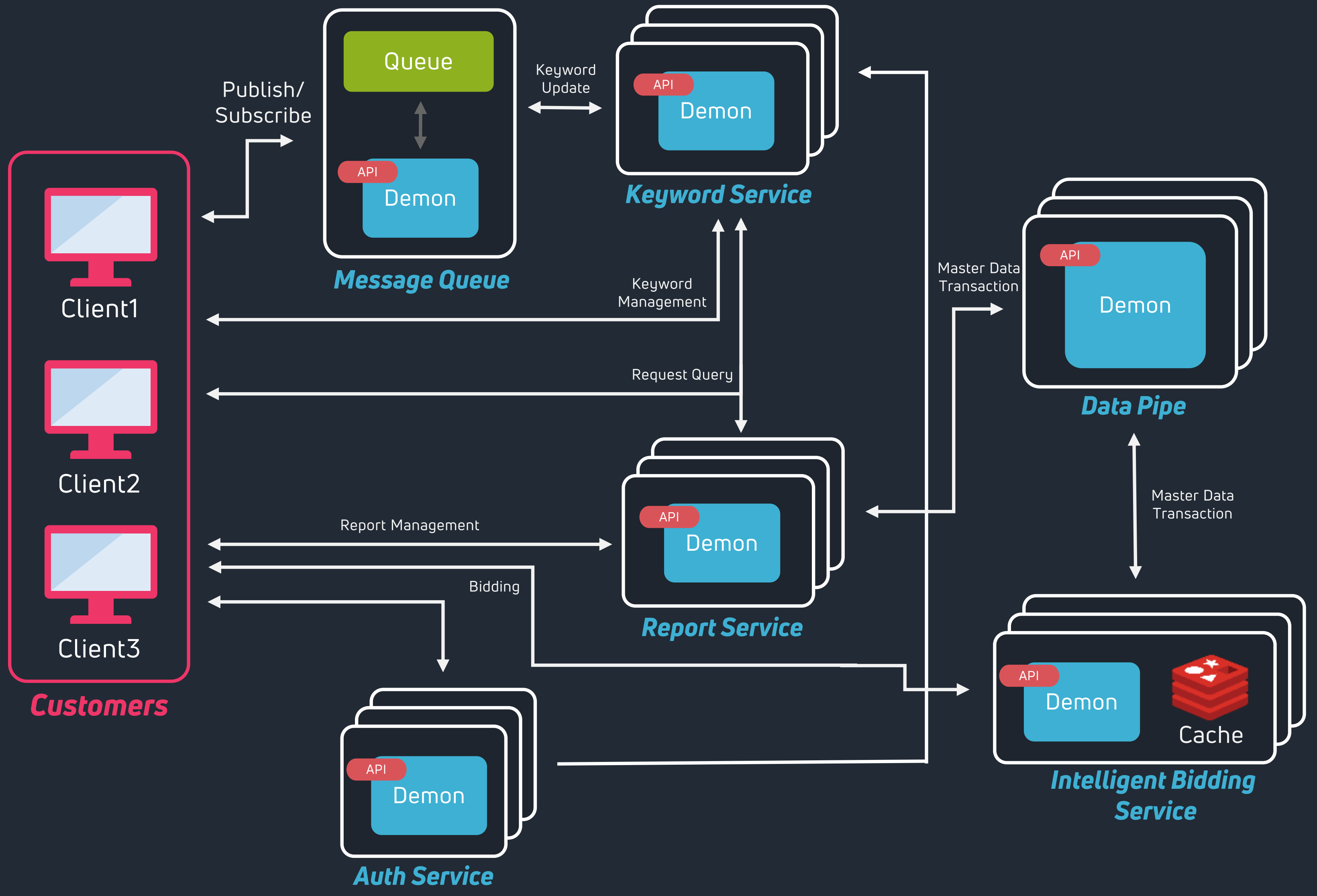
- *Agile based Service*

  Customer needs changes

- *DevOps needs to be light*

  Lots of iteration needs

Architecture



What`s the problem?

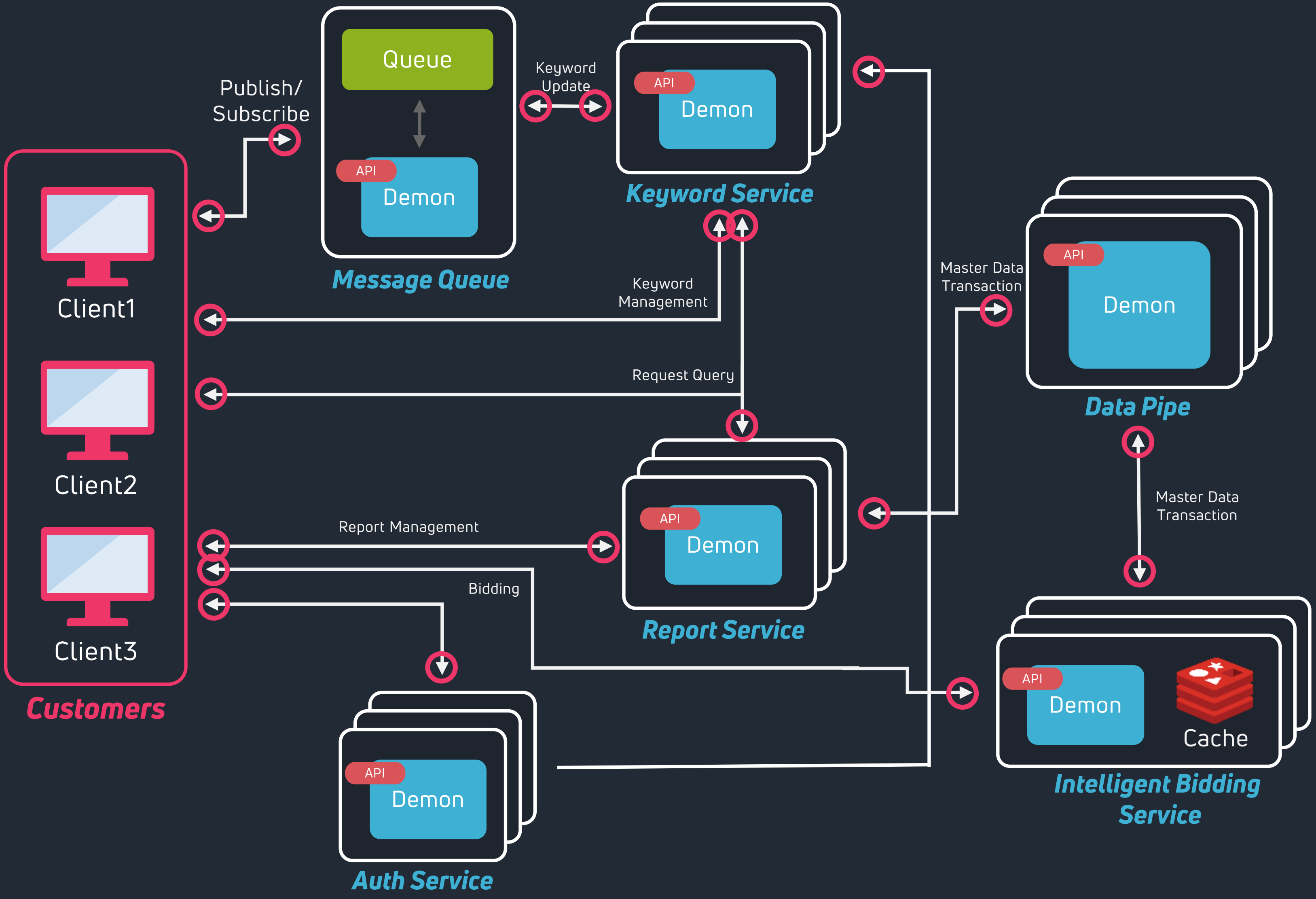
Complicated Architecture

Cloud Deployment

Controlling Authentication

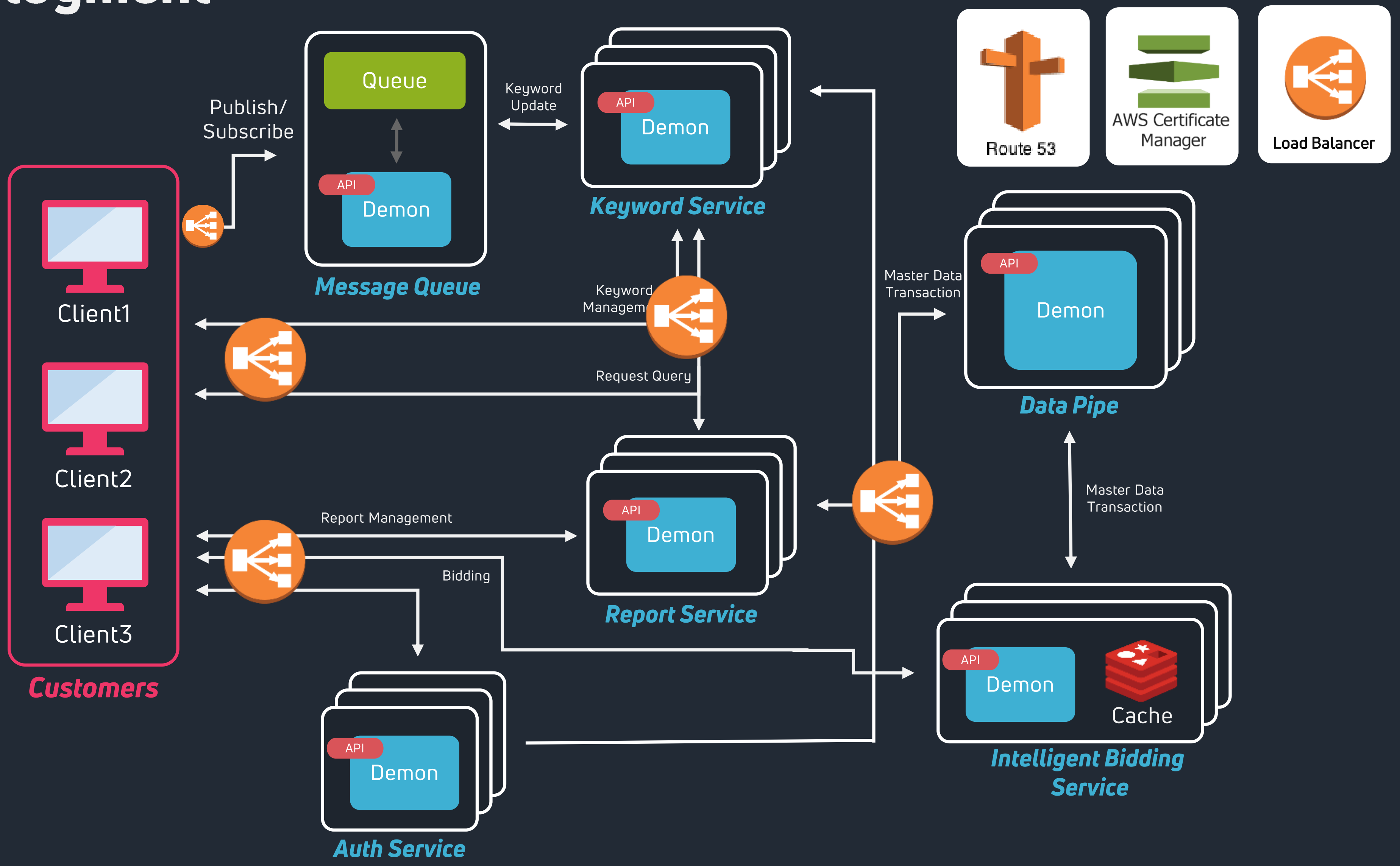
Managing all APIs

Complicated Architecture

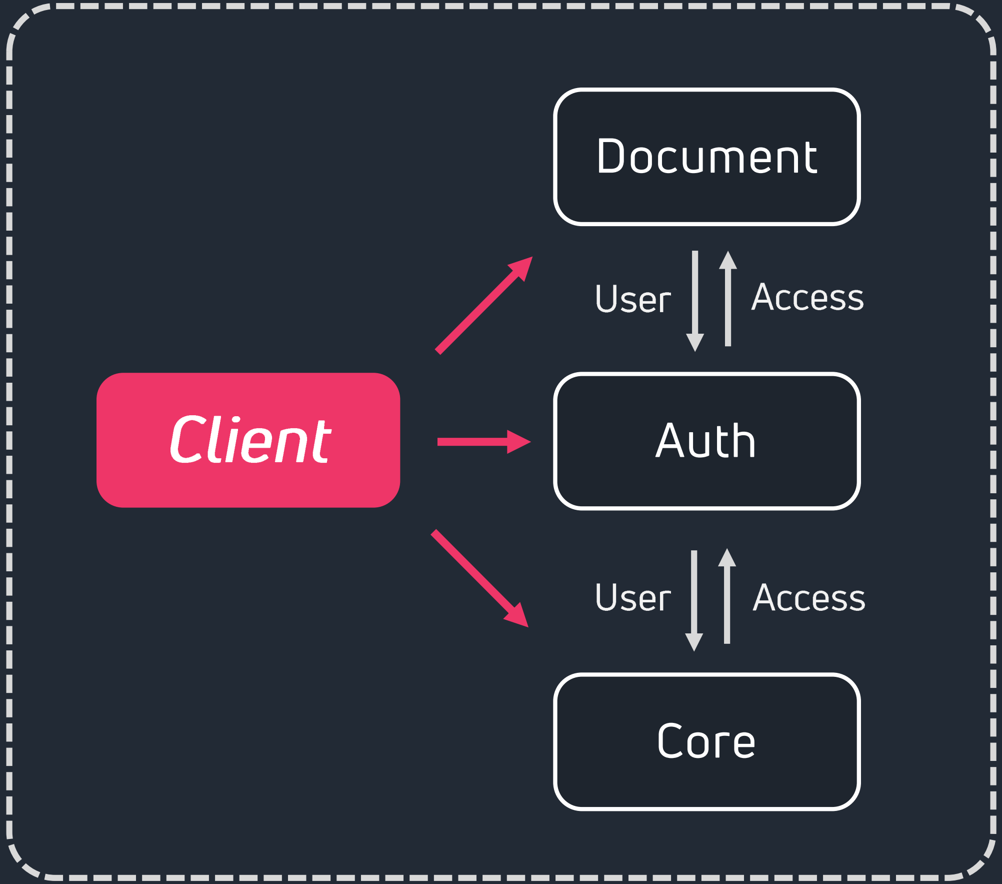


2. Our Situation?

Cloud Deployment

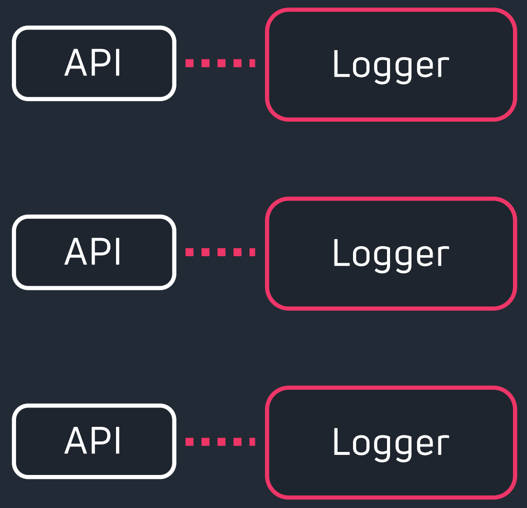


Controlling Authentication



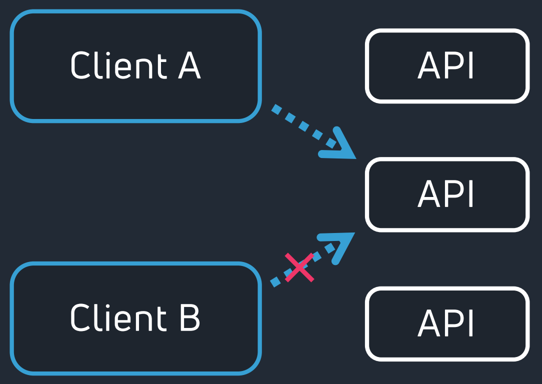
- Implementing OAuth2
- User permission
- Client Access

Managing all APIs



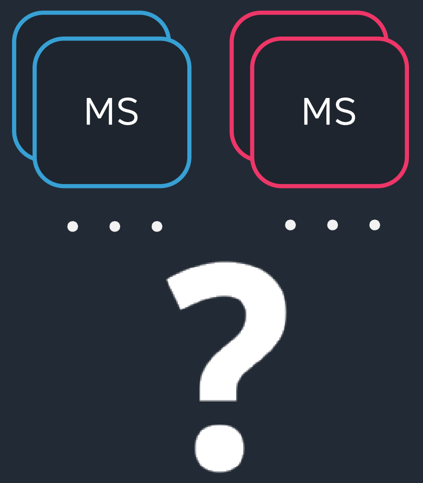
Logging

Separated logging
Hard to debug



Traffic Control

Limiting client separately
API request limiting

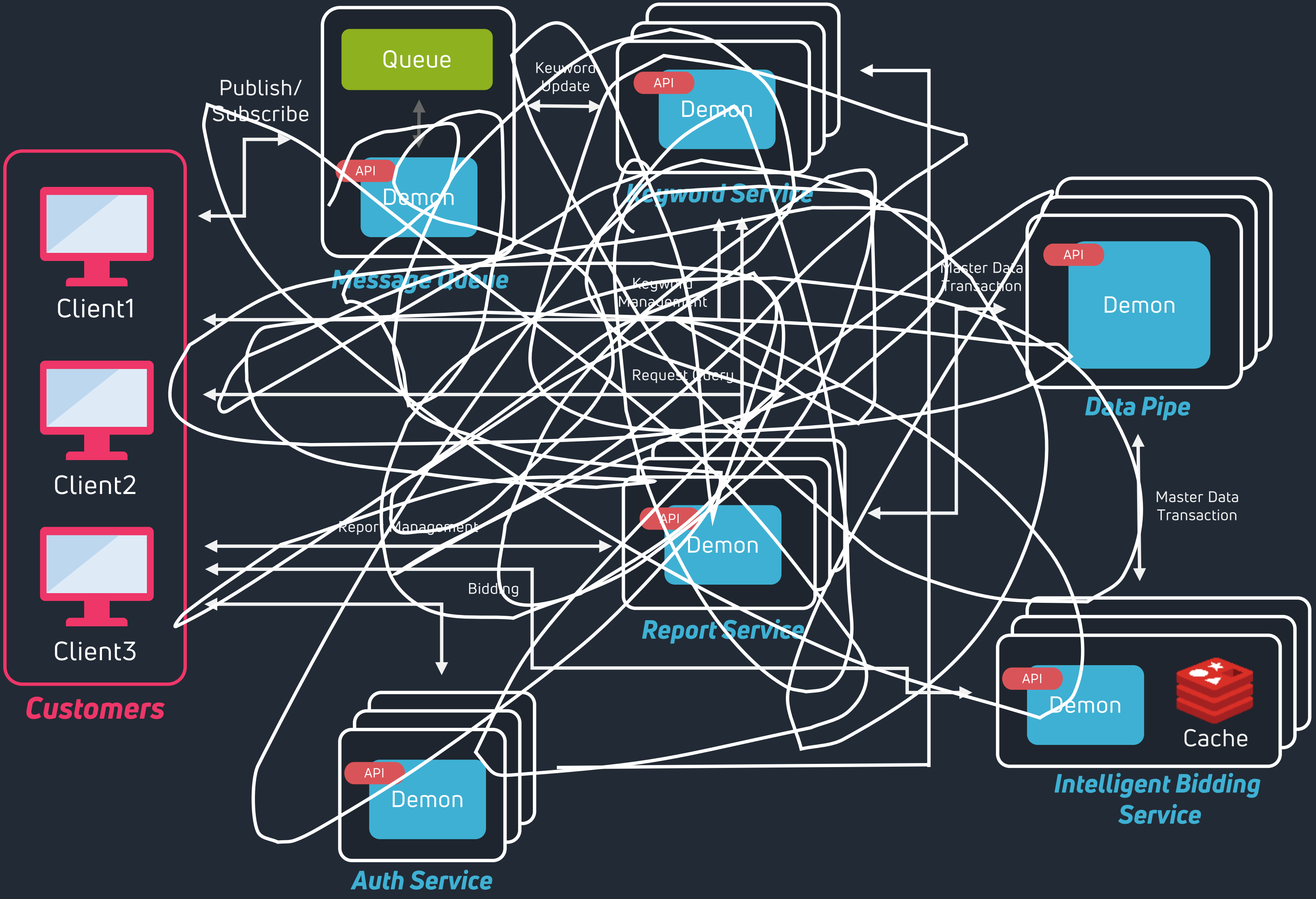


Dev Ops

Can`t monitor API
Hard to scale which

2. Our Situation?

Basically



We need
API Gateway!

3. How I met Kong?

Google Cloud Platform

Cloud
Endpoint

Tyk

mashape

amazon
web services

API Gateway

API Gateway?

StrongLoop™
An IBM Company

Microsoft
Azure

Azure API Management

NETFLIX
ZUUL

apigee

WSO2

Things to Consider

Less to Manage

Easy Configure

Highly Extensible

References

Cloud Provider?

Google Cloud Platform

Cloud Endpoint

Tyk

mashape

amazon web services

API Gateway

Microsoft Azure

Azure API Management

NETFLIX ZUUL

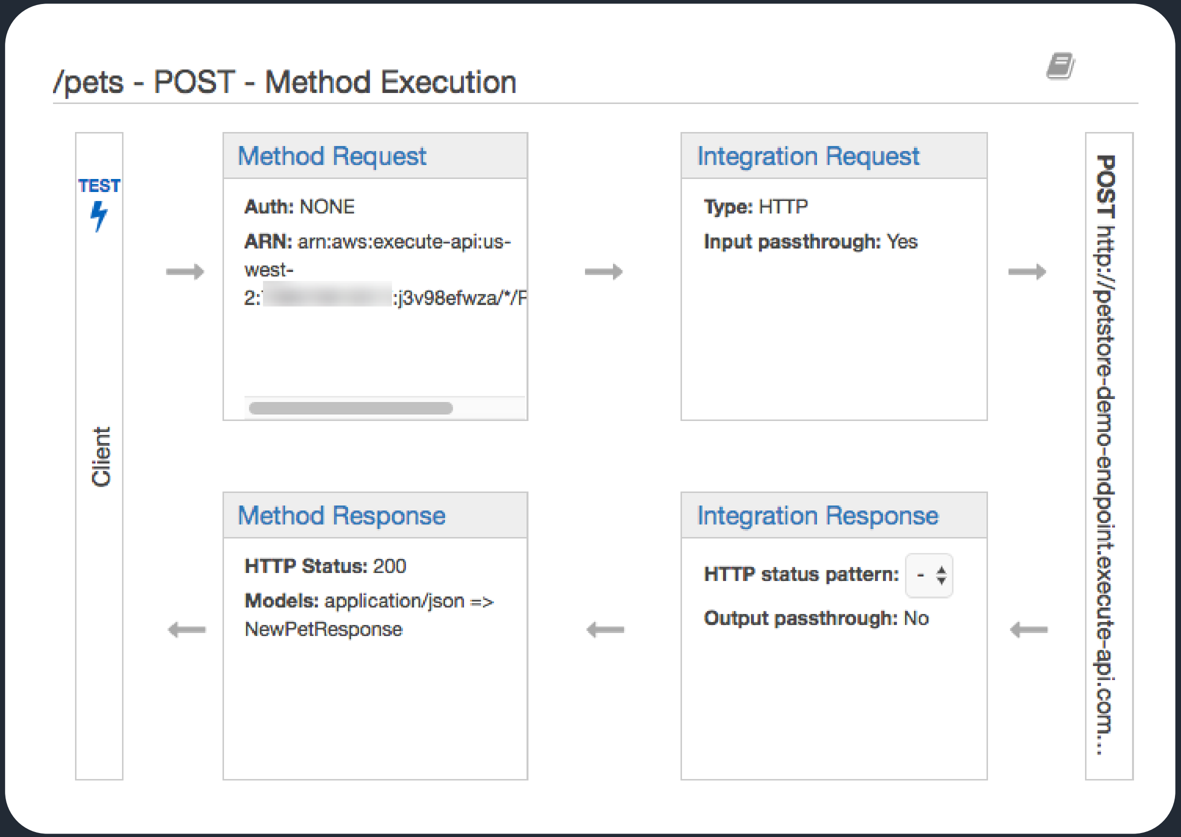
apigee

StrongLoop

An IBM Company

WSO2

AWS API Gateway?



/pets - POST - Method Execution

Method Request

Auth: NONE

ARN: arn:aws:execute-api:us-west-2:[redacted]:j3v98efwza/*/P

Integration Request

Type: HTTP

Input passthrough: Yes

POST http://petstore-demo-endpoint.execute-api.com...

Method Response

HTTP Status: 200

Models: application/json => NewPetResponse

Integration Response

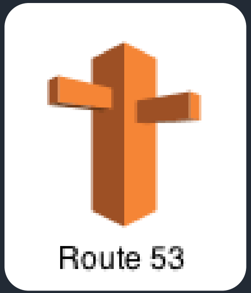
HTTP status pattern: -

Output passthrough: No

Hard to implement Auth

Too much integration

(Route 53, Certificate manager)



Route 53

Amazon Lambda

AWS Certificate Manager

Other Cloud?

Google Cloud Platform

Cloud Endpoint

Microsoft Azure

Azure API Management

WSO2

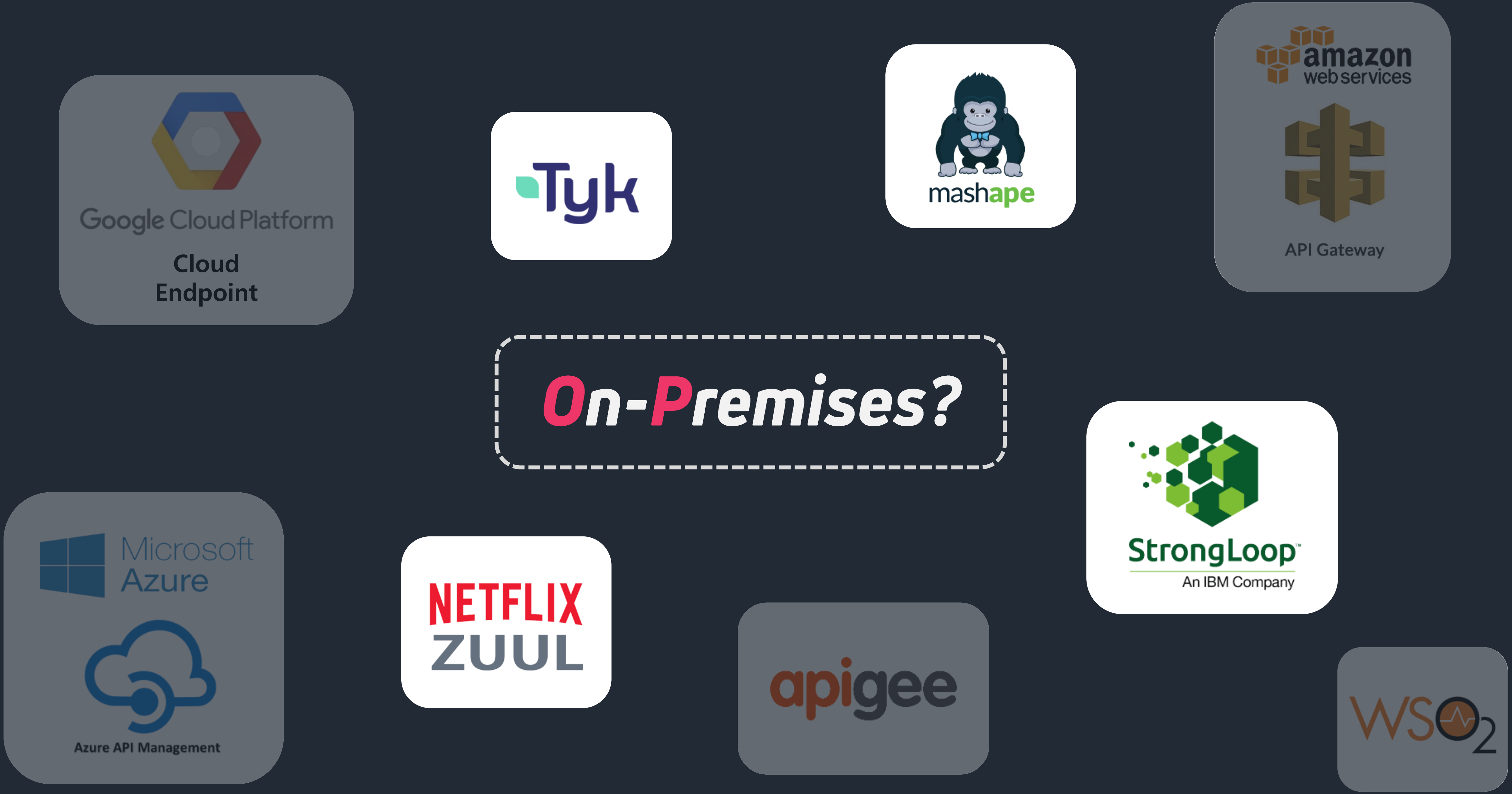
apigee

Hard to Use

(Similar to AWS)

Too Expensive

On-Premises?


Google Cloud Platform
Cloud Endpoint
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mashape
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API Gateway
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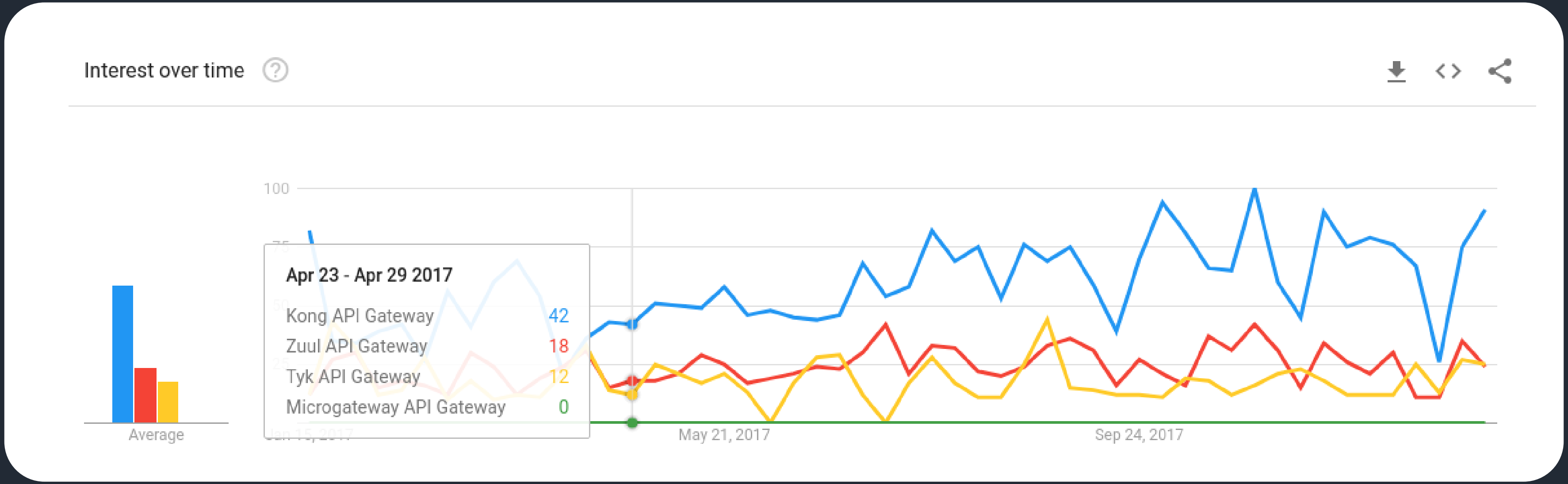
An IBM Company
Microsoft Azure
Azure API Management
NETFLIX ZUUL
apigee
WSO2

Comparison

	KONG	NETFLIX ZUUL	Tyk.io	StrongLoop™ Micro gateway
Language	Lua	Java	Go	Node
GUI	△	X	O	X (IBM Bluemix)
Ease?	O	X	△	△
Extends	O	O	O (↑)	X
Reference	O	△	X	X

Comparison

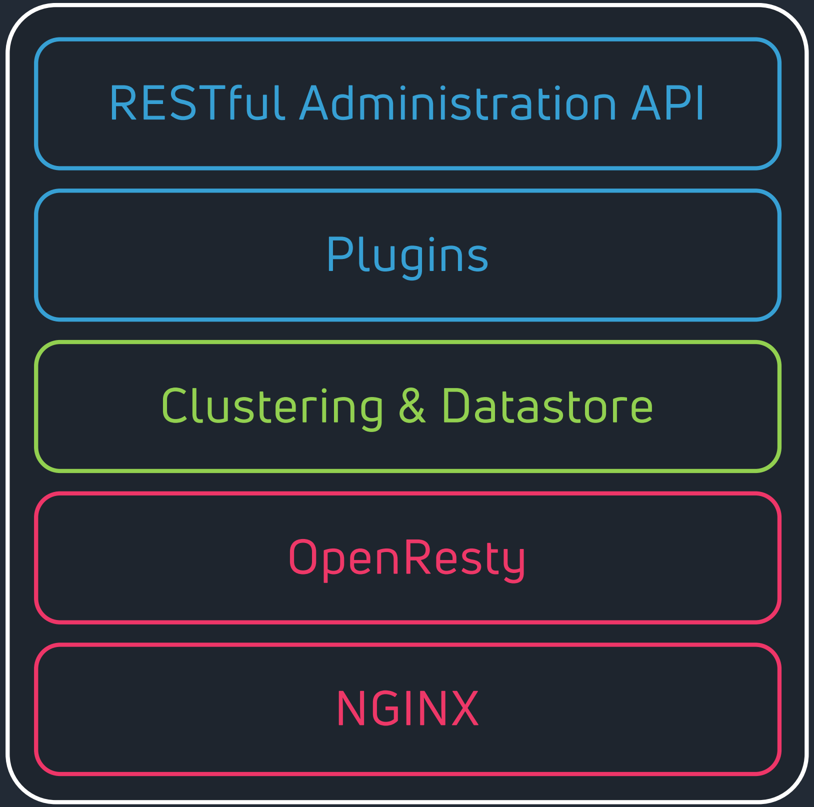
KONG	NETFLIX ZUUL	Tyk.io	StrongLoop Micro gateway
13.7K	3.6K	2.7K	0.7K



Interest over time

Apr 23 - Apr 29 2017	
Kong API Gateway	42
Zuul API Gateway	18
Tyk API Gateway	12
Microgateway API Gateway	0

So What is Kong?



RESTful Administration API

Plugins

Clustering & Datastore

OpenResty

NGINX

Kong

API Layer (middleware)

Easily manage, secure, extend API

OpenResty

Lua scriptable Nginx

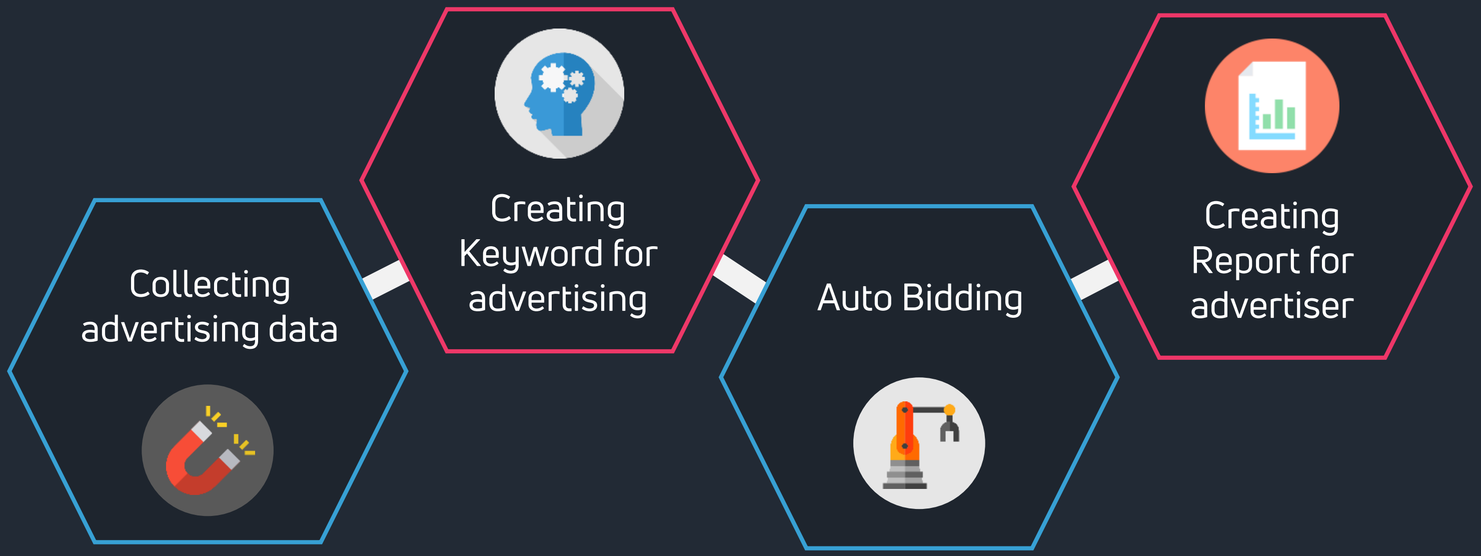
Light weighted & Fast LuaJit

4. How we`re using Kong?

Use-Case

Kaiser

Keyword Ad Intelligent Supporter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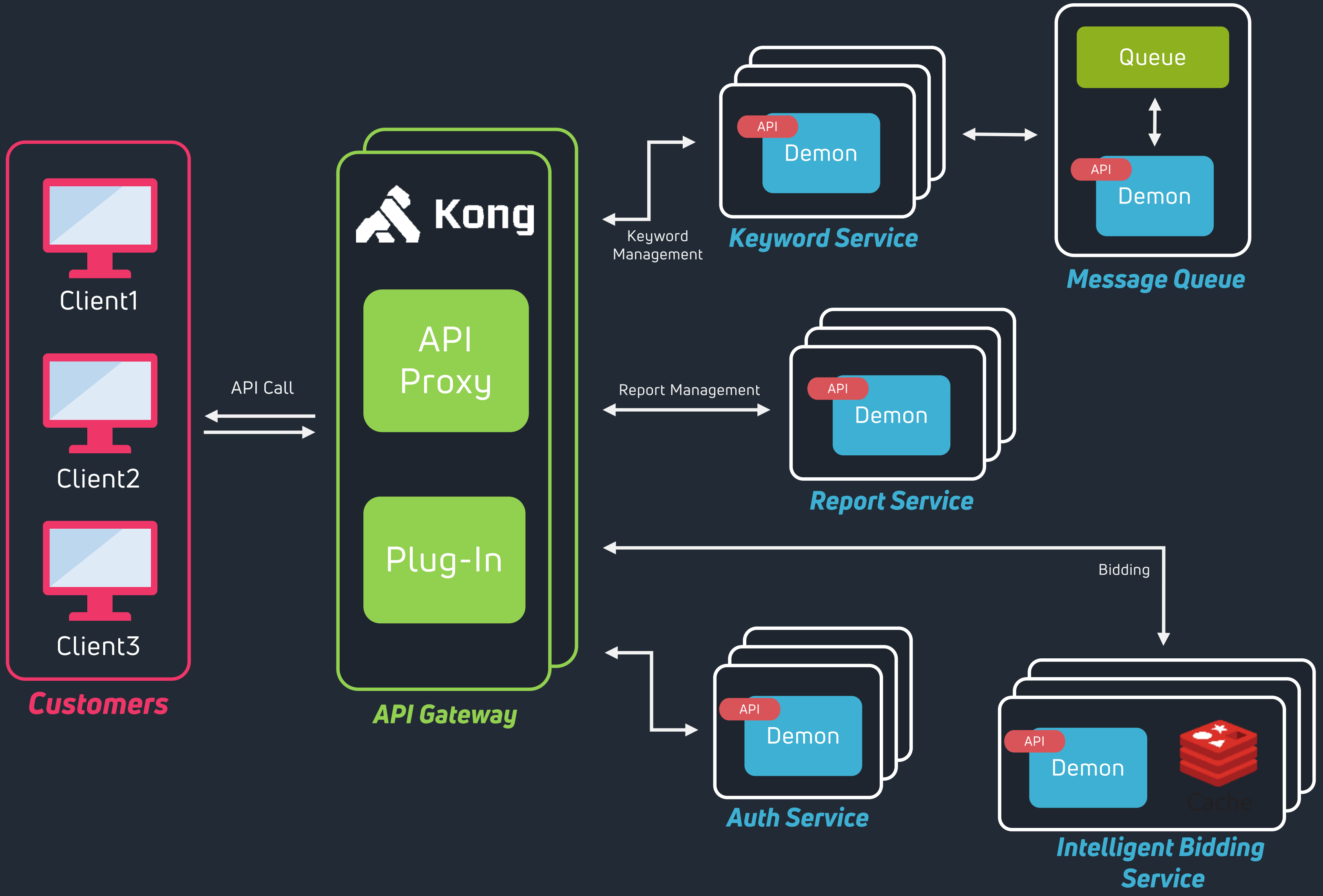
Data-based Keyword AD automation

4. How we`re using Kong?

Architecture



Does it solves the problem?

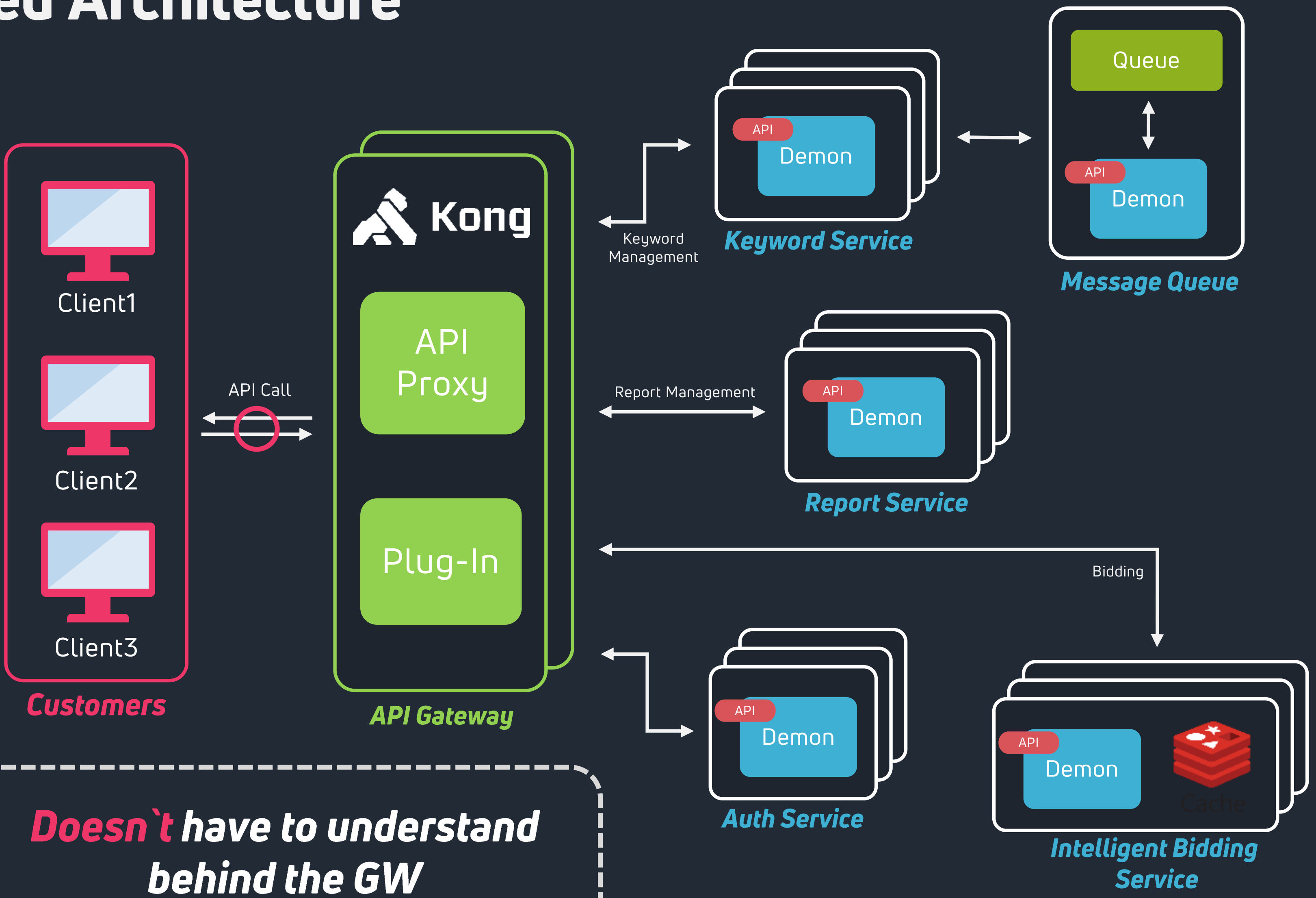
Complicated Architecture

Cloud Deployment

Controlling Authentication

Managing all APIs

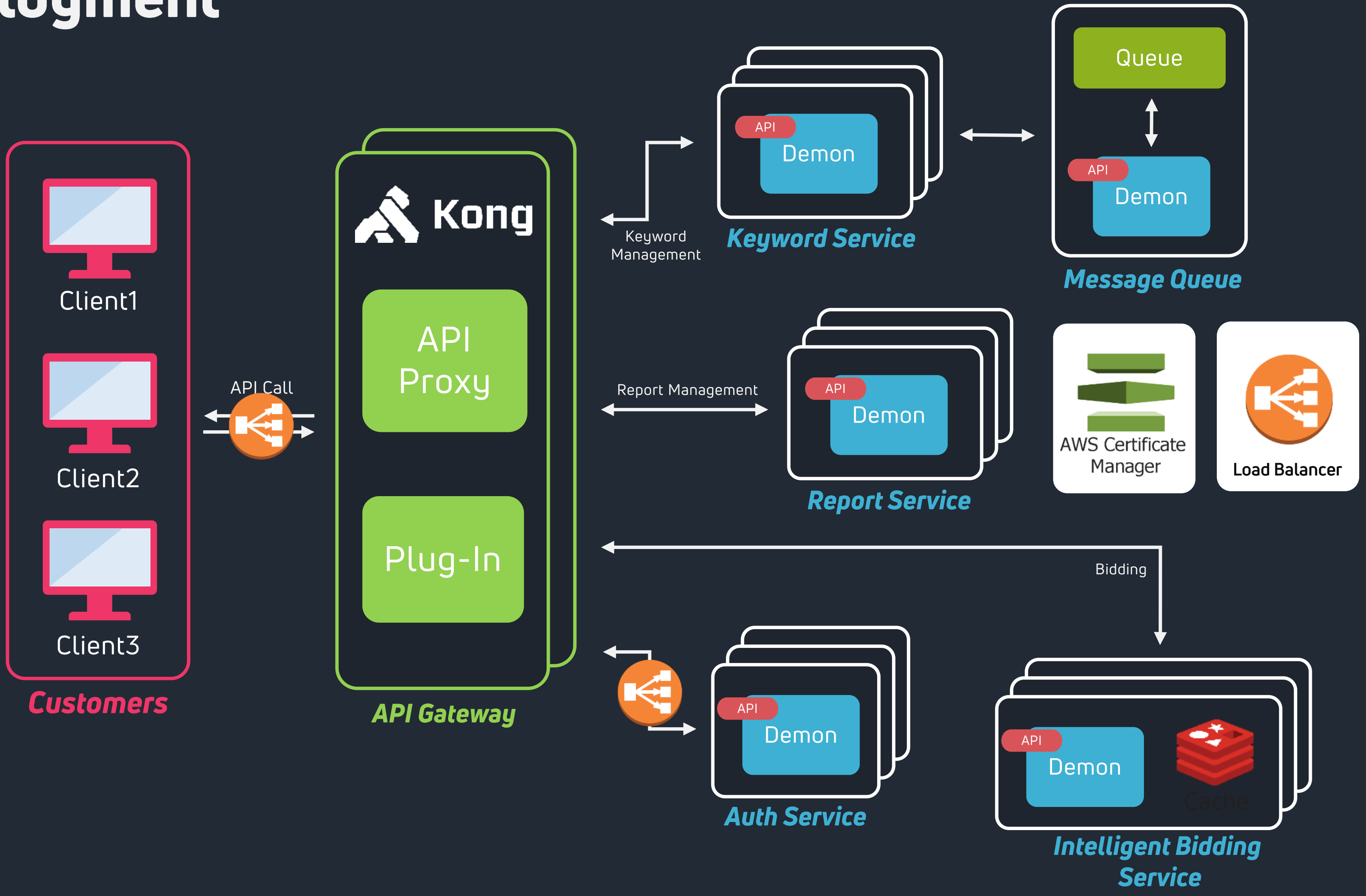
Complicated Architecture



Doesn`t have to understand behind the GW

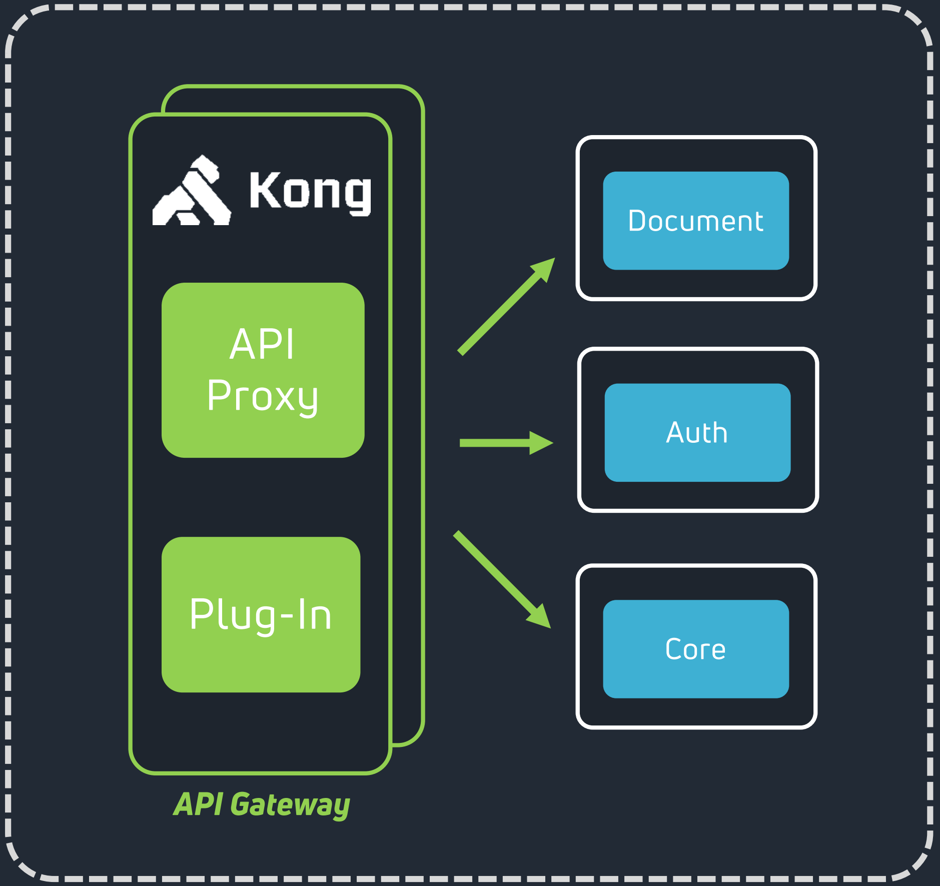
4. How we`re using Kong?

Cloud Deployment



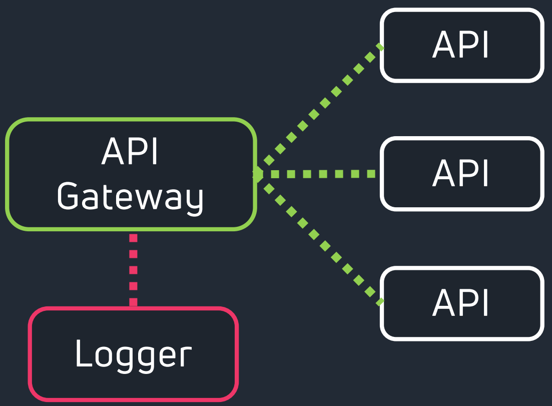
4. How we`re using Kong?

Controlling Authentication



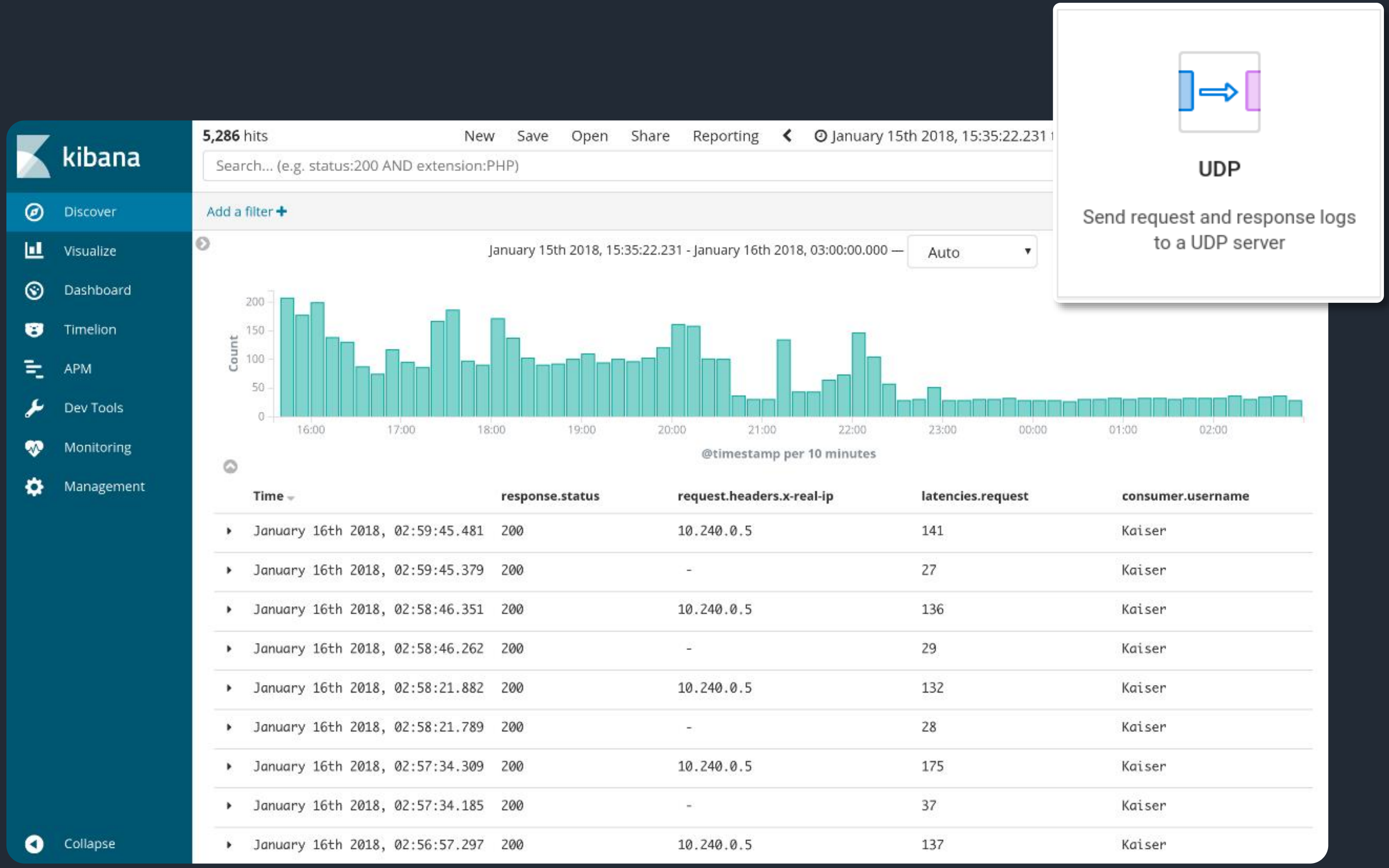
- (Already) Implemented OAuth2
- Managers User permission
- Handles all Client

Managing all APIs



Logging

Log in one place with ELK Stack



5,286 hits

January 15th 2018, 15:35:22.231

Search... (e.g. status:200 AND extension:PHP)

January 15th 2018, 15:35:22.231 - January 16th 2018, 03:00:00.000 —

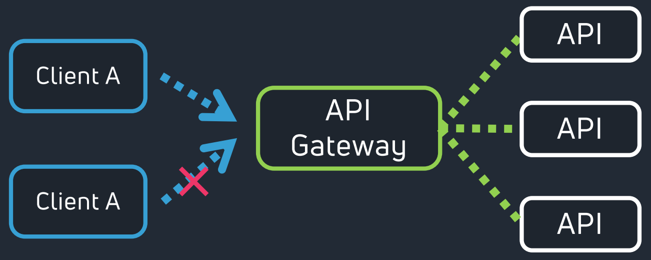
Time	response.status	request.headers.x-real-ip	latencies.request	consumer.username
January 16th 2018, 02:59:45.481	200	10.240.0.5	141	Kaiser
January 16th 2018, 02:59:45.379	200	-	27	Kaiser
January 16th 2018, 02:58:46.351	200	10.240.0.5	136	Kaiser
January 16th 2018, 02:58:46.262	200	-	29	Kaiser
January 16th 2018, 02:58:21.882	200	10.240.0.5	132	Kaiser
January 16th 2018, 02:58:21.789	200	-	28	Kaiser
January 16th 2018, 02:57:34.309	200	10.240.0.5	175	Kaiser
January 16th 2018, 02:57:34.185	200	-	37	Kaiser
January 16th 2018, 02:56:57.297	200	10.240.0.5	137	Kaiser

UDP

Send request and response logs to a UDP server

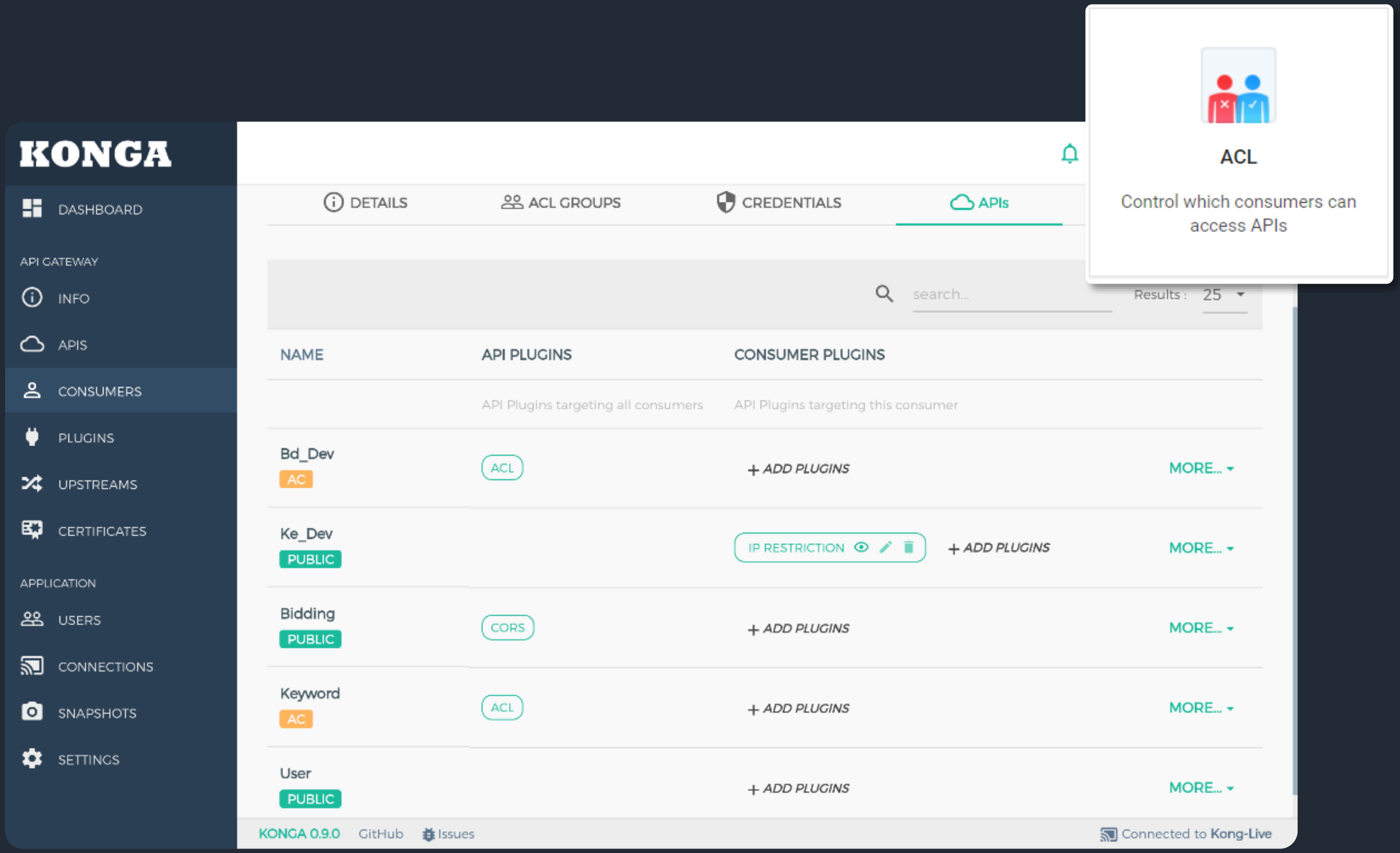
4. How we`re using Kong?

Managing all APIs



Traffic Control

Limit client access (ACL)
Unified API request manage



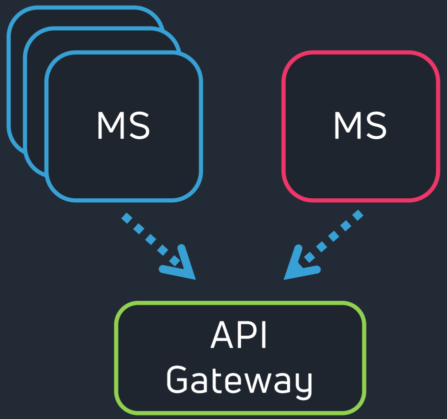
NAME	API PLUGINS	CONSUMER PLUGINS	
	API Plugins targeting all consumers	API Plugins targeting this consumer	
Bd_Dev AC	ACL	+ ADD PLUGINS	MORE...
Ke_Dev PUBLIC		IP RESTRICTION + ADD PLUGINS	MORE...
Bidding PUBLIC	CORS	+ ADD PLUGINS	MORE...
Keyword AC	ACL	+ ADD PLUGINS	MORE...
User PUBLIC		+ ADD PLUGINS	MORE...

KONGA 0.9.0 GitHub Issues Connected to Kong-Live

ACL

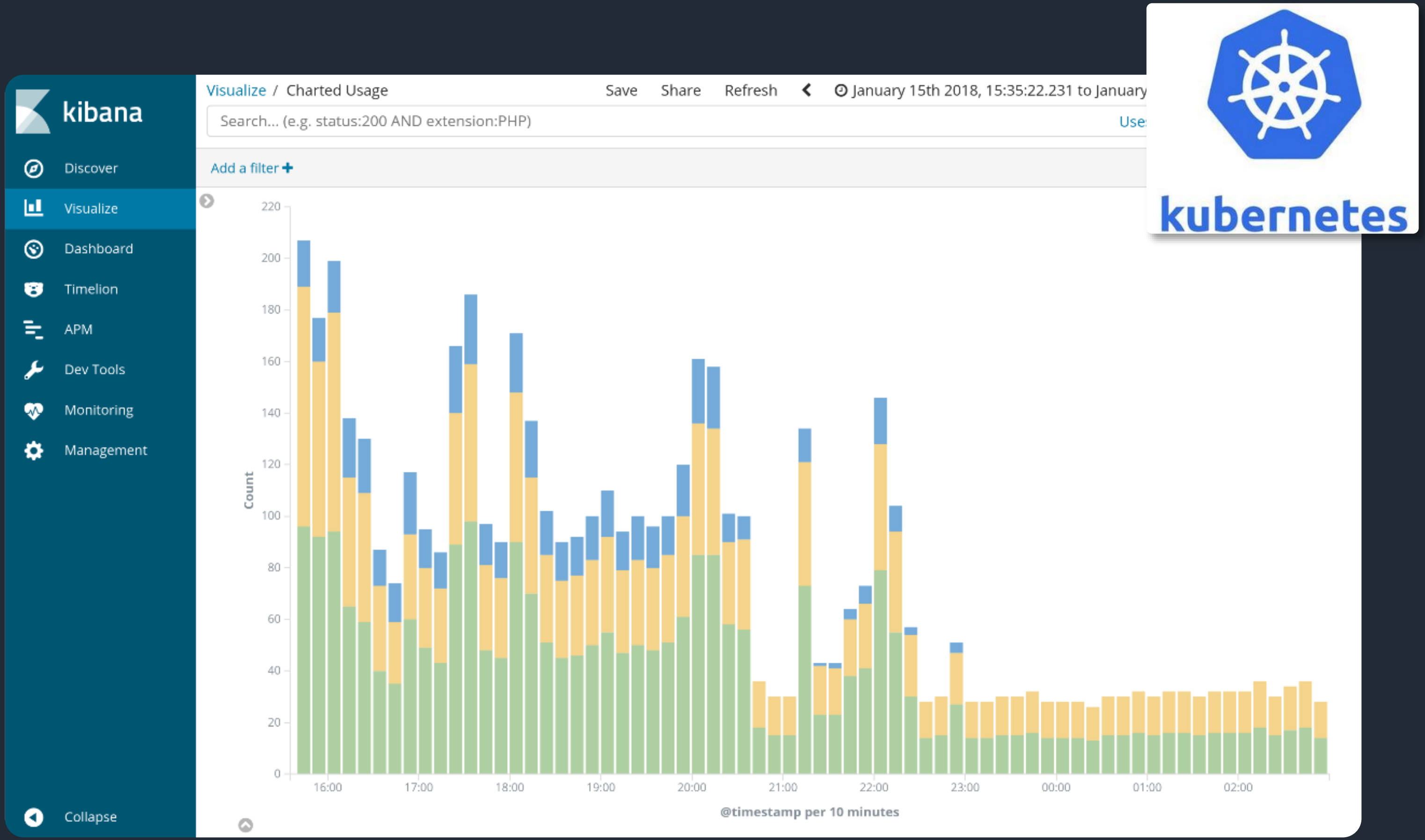
Control which consumers can access APIs

Managing all APIs



Dev Ops

Monitor API usage
Effective with DevOps



One Step Further

We wanted Client & API Versioning

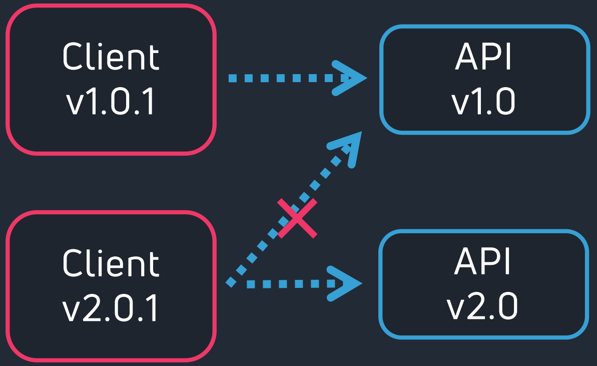
But it`s for Enterprise!

So, we built one

Introducing, Shepherd Plugin

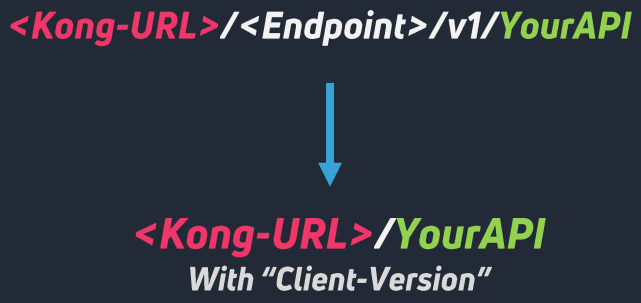
Shepherd

github.com/DanielTimLee/shepherd



Client & API Versioning

Client doesn`t have to know
Which API version it`s using



Shorten request URL

Collapse request URL
With "Client-Version" Header

Shepherd

```
vagrant@vagrant-ubuntu-trusty-64:~$
```

Any feedbacks?

Feedback

- *Dev. Environment*

  Each Parts related to Kong

- *Plugin Development*

  Hard to debug, Only Lua available

- *Limited functionality*

  Not supported in community ver.

Thanks for listening

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DATA DRIVEN STARTUP