Event-Driven APIs: Building Real-Time Interfaces

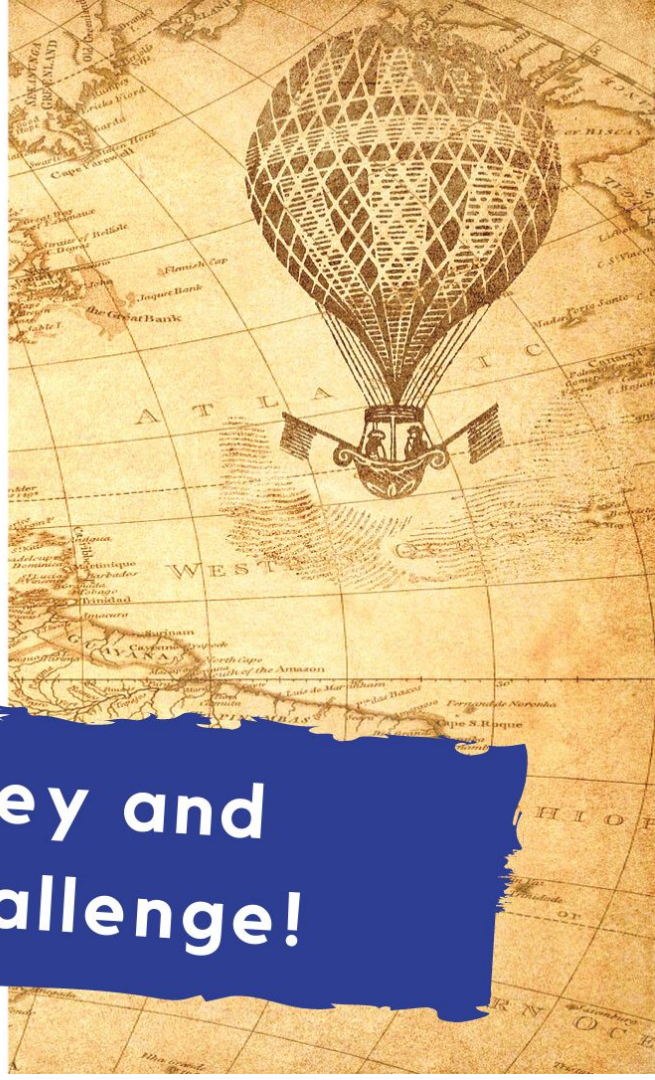
Uli Hitzel
API Evangelist
Axway

axway

Singapore, November 2019


ULTIMATE
EARS

CAN YOU FIND THE TREASURE?



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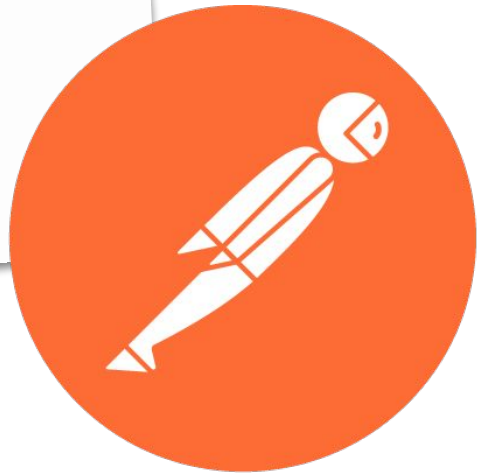
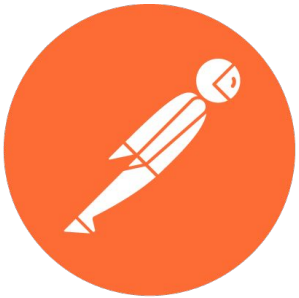
Fill out the Survey and play the API Challenge!


https://apichallenge.net
apichallenge.net
Search Bing
{"message": "Welcome! Ready to /start the challenge?"}



curl://

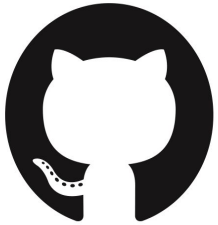
curl://



http://bit.ly/apicraft201911

Developer Advocate

/in/uhitzel



/u1i/slides






cosmicrenaissance

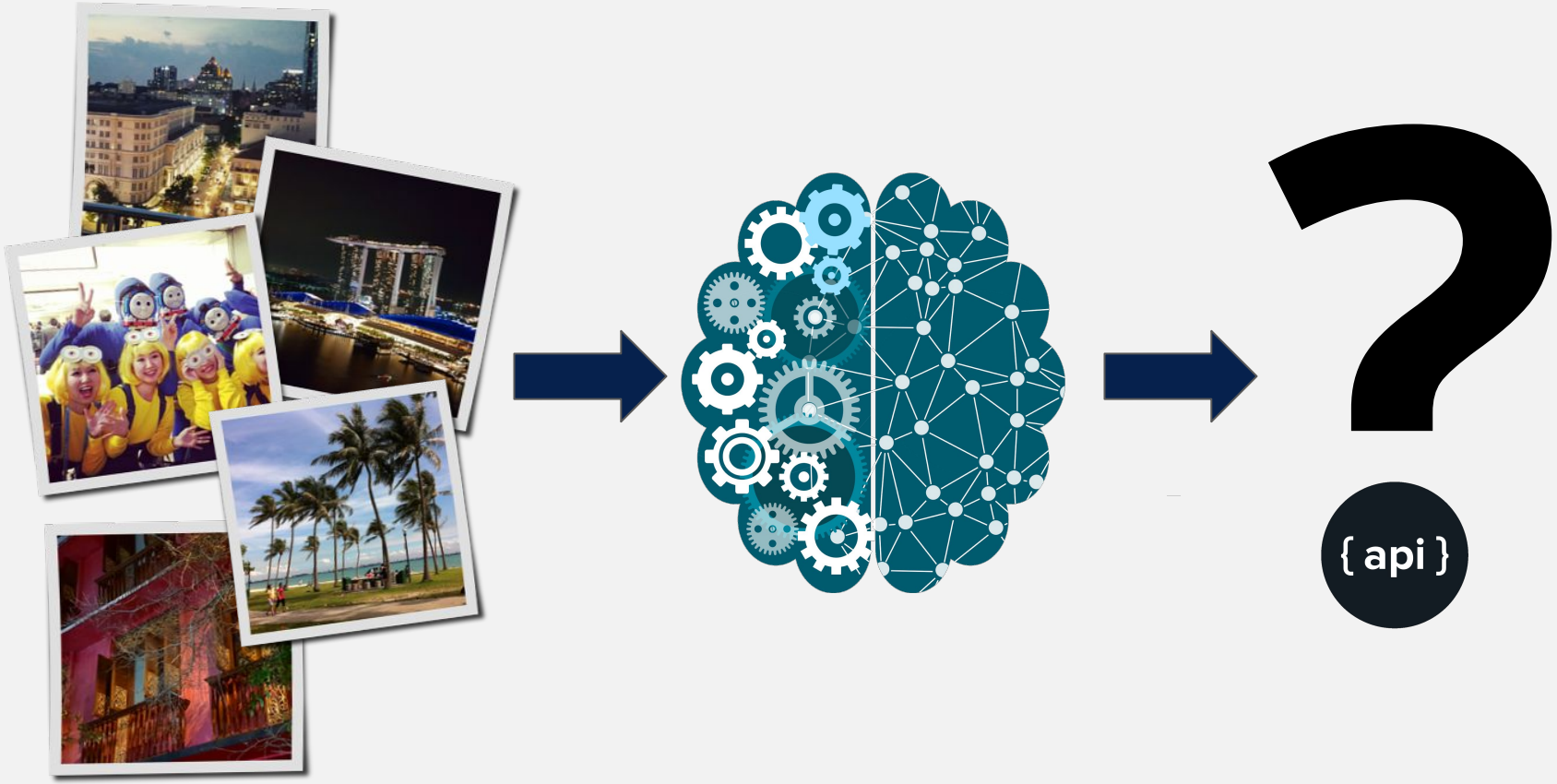
1,257 posts **194** followers **615** following

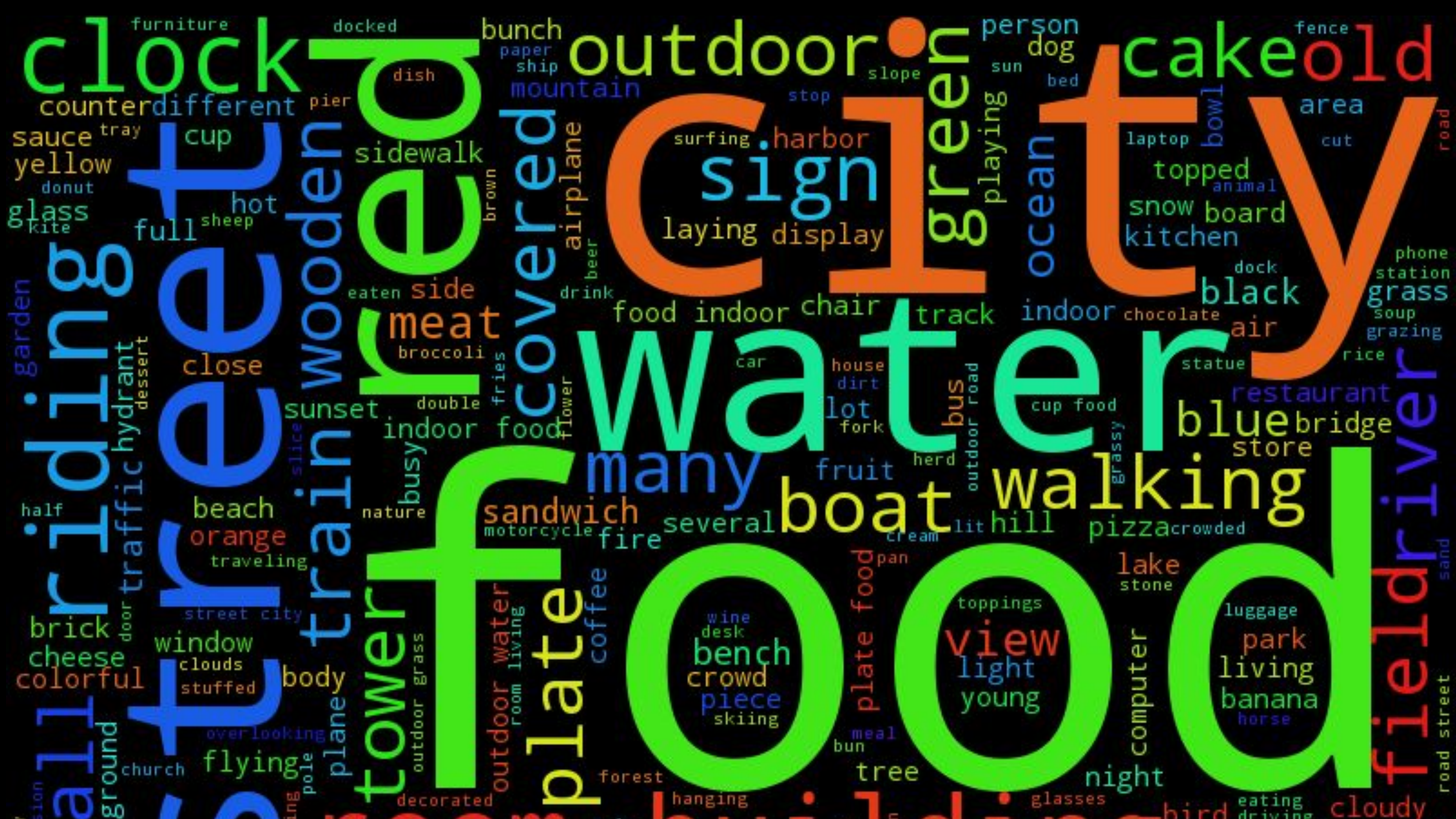
Just some guy, really.

+65

City life, scenery, food.

Camera: Samsung Galaxy S7/S9


{ api }



city
food
water
street
red
clock
outdoor
cake
old
riding
wooden
train
covered
sign
green
ocean
playing
airplane
many
boat
walking
blue
river
field
plate
tower
view
furniture
docked
bunch
person
fence
paper
dog
ship
sun
dish
slope
bed
mountain
counter
different
pier
stop
area
sauce
tray
cup
surfing
harbor
laptop
bowl
cut
road
yellow
sidewalk
topped
donut
animal
glass
hot
brown
snow
board
kite
sheep
laying
display
kitchen
full
phone
dock
station
garden
beer
eaten
side
drink
black
grass
food indoor
chair
track
indoor
chocolate
soup
meat
air
grazing
broccoli
close
hydrant
dessert
fries
car
house
statue
rice
restaurant
dirt
sunset
double
flower
lot
cup food
bridge
indoor food
fork
bus
grassy
store
herd
traffic
busy
slice
fruit
outdoor road
half
nature
beach
sandwich
several
hill
pizza
crowded
motorcycle
cream
lit
orange
fire
traveling
pan
lake
sand
stone
coffee
toppings
door
street city
wine
luggage
brick
desk
window
outdoor water
living
park
bench
cheese
light
clouds
body
crowd
colorful
stuffed
piece
young
banana
computer
plane
grass
skiing
horse
ground
overlooking
meal
road street
church
flying
bun
pole
outdoor
room living
plate food
tree
night
forest
decorated
hanging
glasses
eating
bird
cloudy


{ api }
Microsoft
Cognitive Services

Text: “a close up of a pizza”

Confidence: 0.9246481371443355

Tags: “pizza” “food” “table” “sitting” “cheese” “plate” “top” “piece” “slice” “toppings” “close” “eaten” “sauce” “covered” “wooden” “large” “pepperoni” “white” “pan”

Text: “a cup of coffee”

Confidence: 0.8527612488821656

Tags: “cup” “table” “coffee” “food” “sitting” “drink” “plate” “sandwich” “breakfast” “spoon” “glass” “close” “donut” “hot” “white” “phone” “soup”

Text: “a wooden table next to a window”

Confidence: 0.8365439206950018

Tags: “table” “indoor” “window” “room” “sitting” “chair” “small” “desk” “wooden” “laptop” “lit” “top” “light” “counter” “computer” “living” “kitchen”

Text: “a sunset over the ocean”

Confidence: 0.8065587199349568

Tags: “outdoor” “water” “beach” “sunset” “ocean” “sun” “man” “pier” “track” “board” “top” “large” “red” “standing” “surfing” “walking” “boat” “holding” “flying”

Text: “a bunch of bananas”

Confidence: 0.3760801674760429 5

Tags: “animal” “covered” “sitting” “old” “side” “large” “water” “lot” “many” “top” “table” “bunch” “street” “fire” “bird” “snow” “parking” “group” “river” “ocean” “field”

Agenda

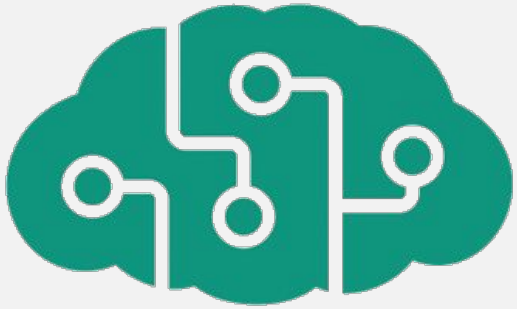
1 – It’s all about Developer Experience

2 – Event-Driven APIs

3 – Demo

You've just seen a great Example

- API abstracts something really complex
- Quick Results
- Easy to use → More Users → More Sample Data → AI learns → Better Product



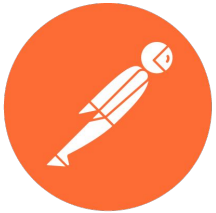
Microsoft
Cognitive Services

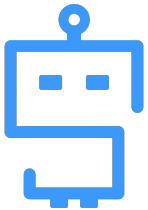
```yaml
swagger: "2.0"
info:
  description: "This is a sample serv
    out more about     Swagger at [ht
    or on [irc.freenode.net, #swagger
    this sample, you can use the api
    authorization     filters."
  version: "1.0.0"
  title: "Swagger Petstore"
  termsOfService: "http://swagger.io/
  contact:
    email: "apiteam@swagger.io"
  license:
    name: "Apache 2.0"
    url: "http://www.apache.org/licen
host: "petstore.swagger.io"
basePath: "/v2"
tags:
- name: "pet"
  description: "Everything about your
  externalDocs:
    description: "Find out more"
    url: "http://swagger.io"
- name: "store"
  description: "Access to Petstore or
- name: "user"
  description: "Operations about user
  externalDocs:
    description: "Find out more about
    url: "http://swagger.io"
```

Design First

1

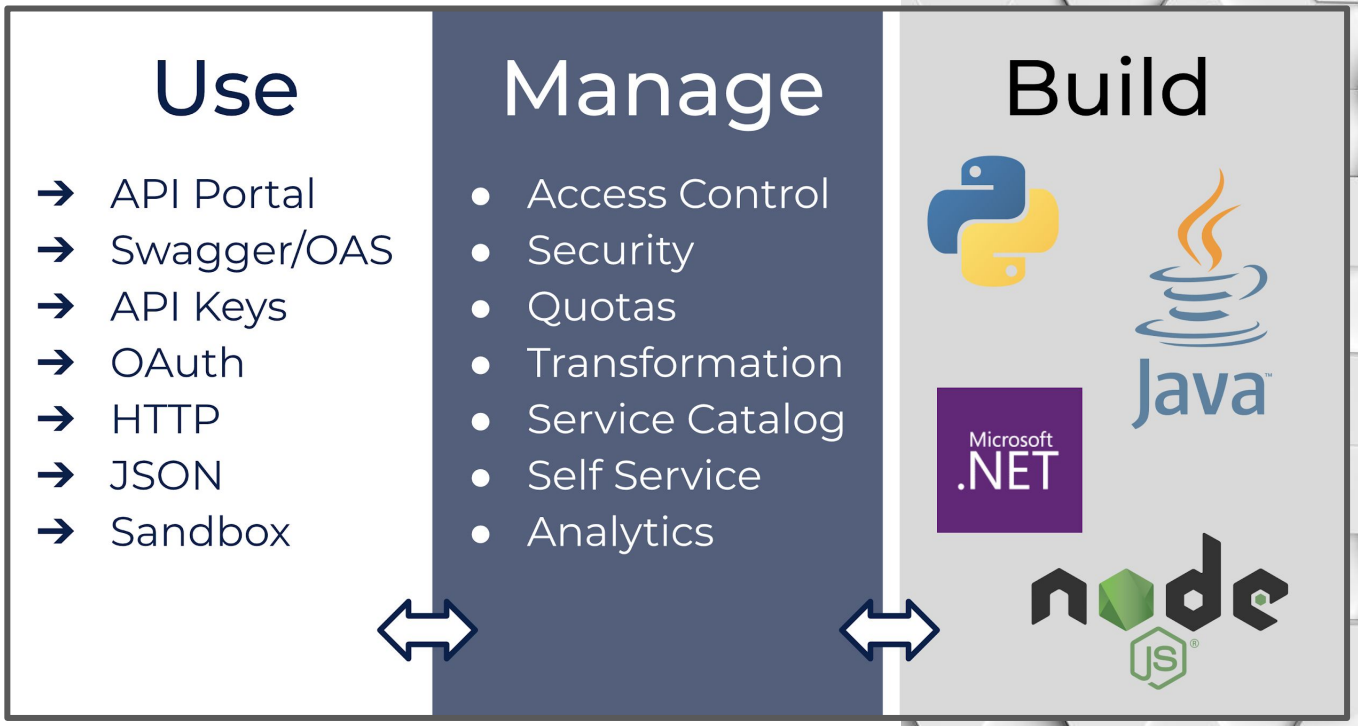
- What can I do?
- What do I get?
- Data Models
- Authentication
- License





Divide & Conquer

2



Think like a Developer.

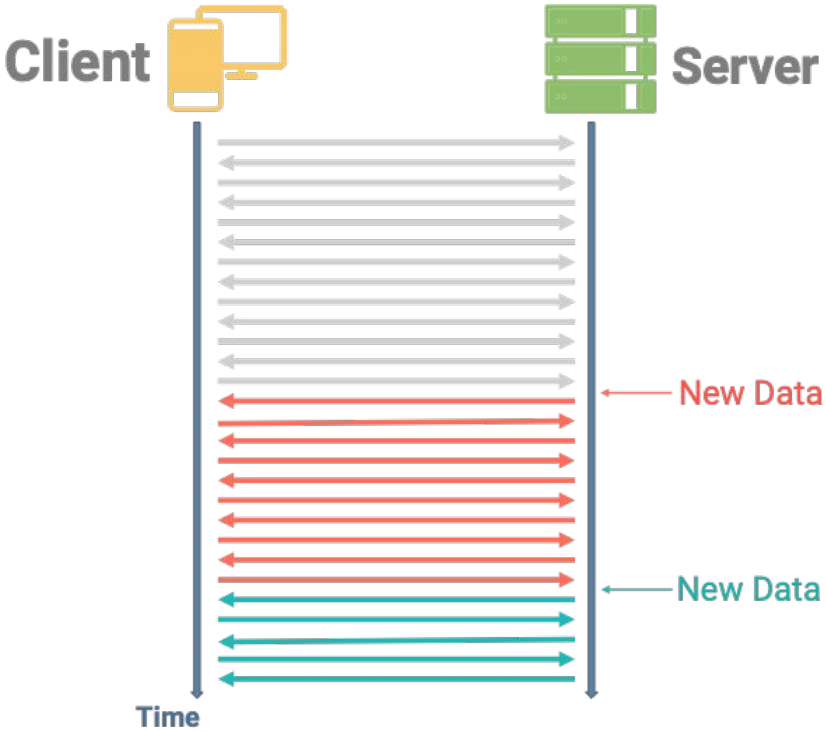
Think Use Cases.

3

Event-Driven User Interfaces

1 EUR = 1.091245 USD	1 EUR = 1.091315 USD
1 USD = 0.65501 GBP	1 USD = 0.655055 GBP
1 EUR = 135.522 JPY	1 EUR = 135.509 JPY

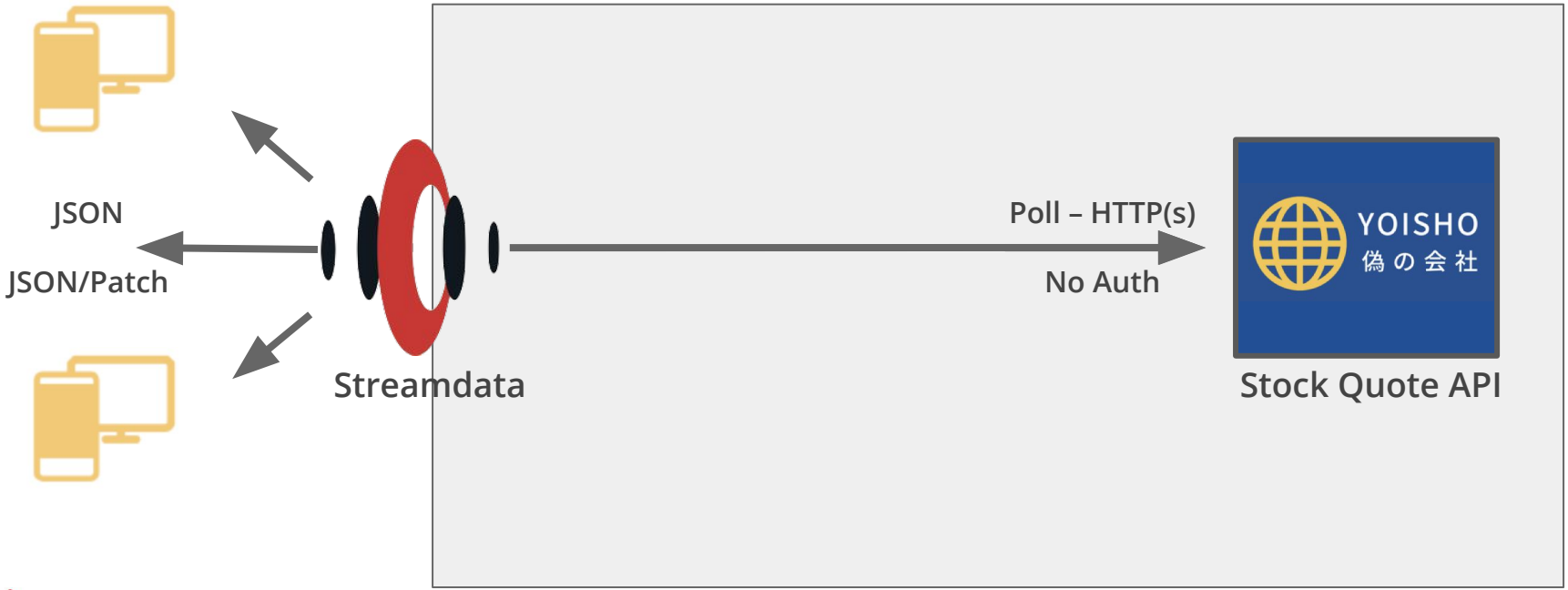
Approach: Continuous Polling



Better: Event-Driven

- Financial Sector Clients
- Airlines & Travel Systems
- Smarter Cities
- Media / News

Use Case – Setup



streamdata.io
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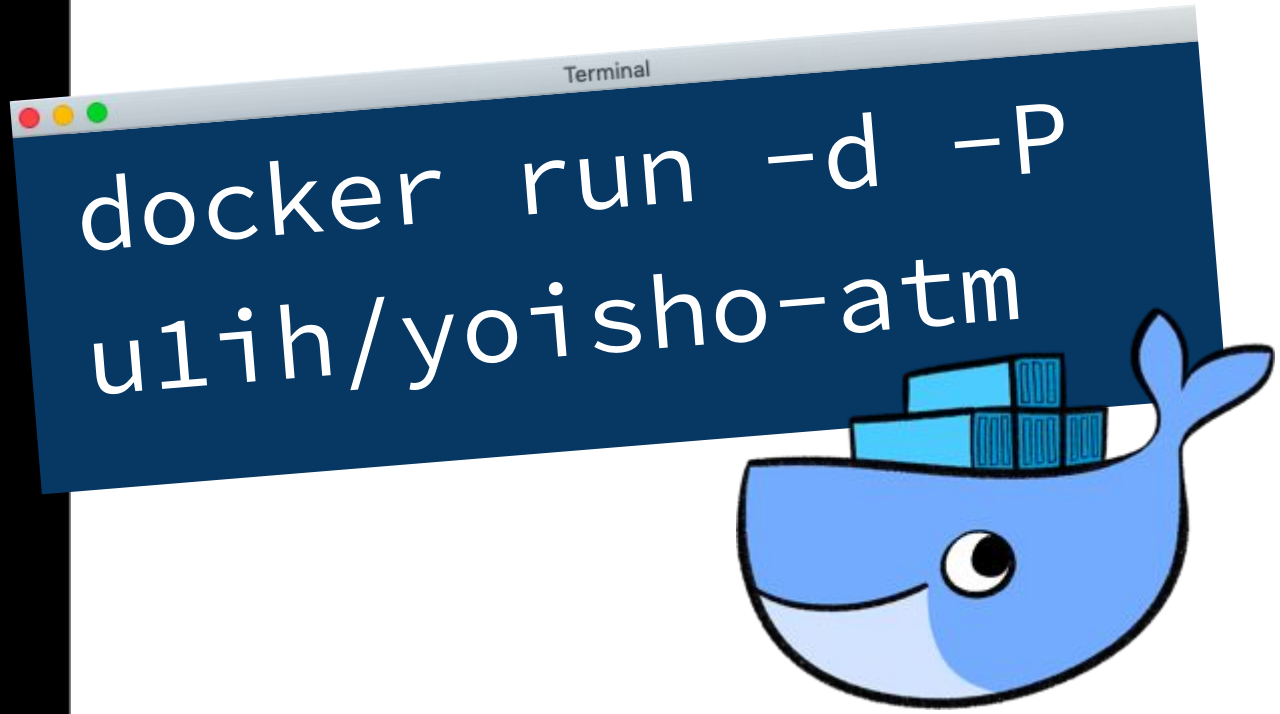
偽の会社

Open Banking APIs

SOAP & REST Webservices / APIs for a fictional japanese bank. Easy to run docker images that expose endpoints you can use for demos and testing.

View On GitHub



Open Banking - Live Endpoints

Webservices and REST APIs that expose bank related data services with dynamic content, use them for testing and demos. Available over HTTP and HTTPS

Full Documentation

ATM

Full CRUDL REST interface (Create, Read, Update, Delete, List), /v1 and /v2 endpoints with respective Swagger specs

- API Version 1 - Swagger
- API Version 1 - Swagger Editor
- API Version 2 - Swagger
- API Version 2 - Swagger Editor
- Sample Request

Currency Exchange

REST/JSON, 1 parameter. Response is different each time.

- Swagger
- Swagger Editor
- Sample Request

Assets (SOAP)

Bank Assets & Debt- SOAP/XML, 2 methods, dynamic output.

- WSDL

Open Banking - Live Endpoints

Webservices and REST APIs that expose bank related data services with dynamic content, use them for testing and demos. Available over HTTP and HTTPS

Full Documentation

Fixed Deposit

Calculator - REST/JSON, 2 parameters, semantic error handling, complex output

Swagger

Swagger Editor

Sample Request

Investment

/v1 and /v2 endpoints with respective Swagger specs. Static responses.

API Version 1 - Swagger

API Version 1 - Swagger Editor

API Version 2 - Swagger

Swagger Editor

API Version 2 - Sample Request

Stock Quote

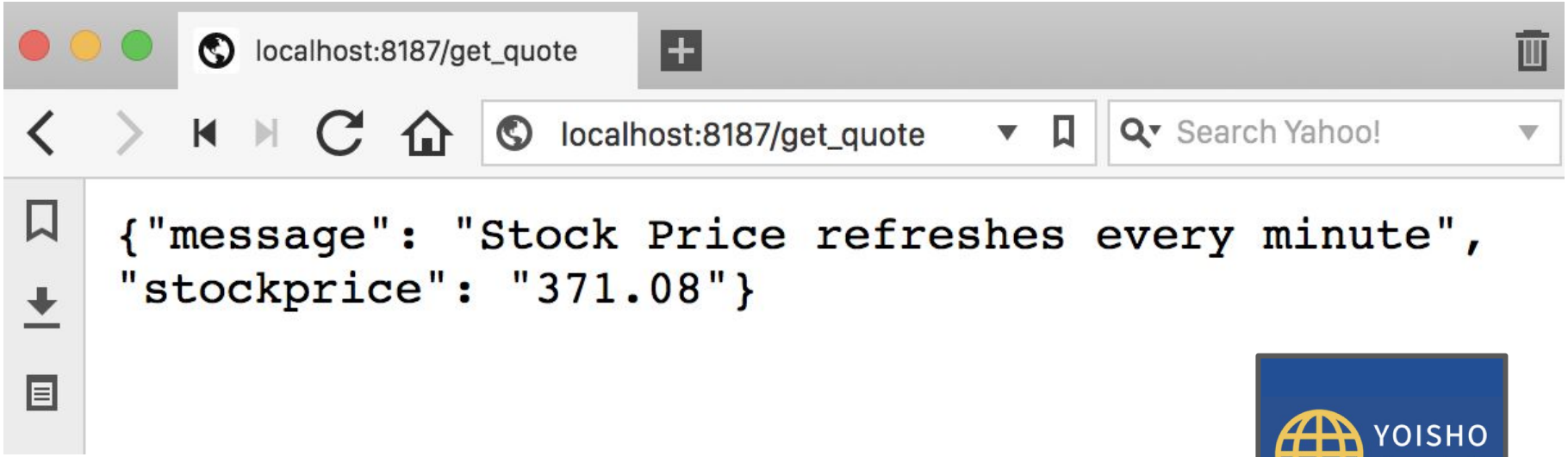
Returns the stock price. Data updates once every minute, it's also sending additional Cache-Control headers.

Swagger

Swagger Editor

Sample Request

API Backend: Stock Quote



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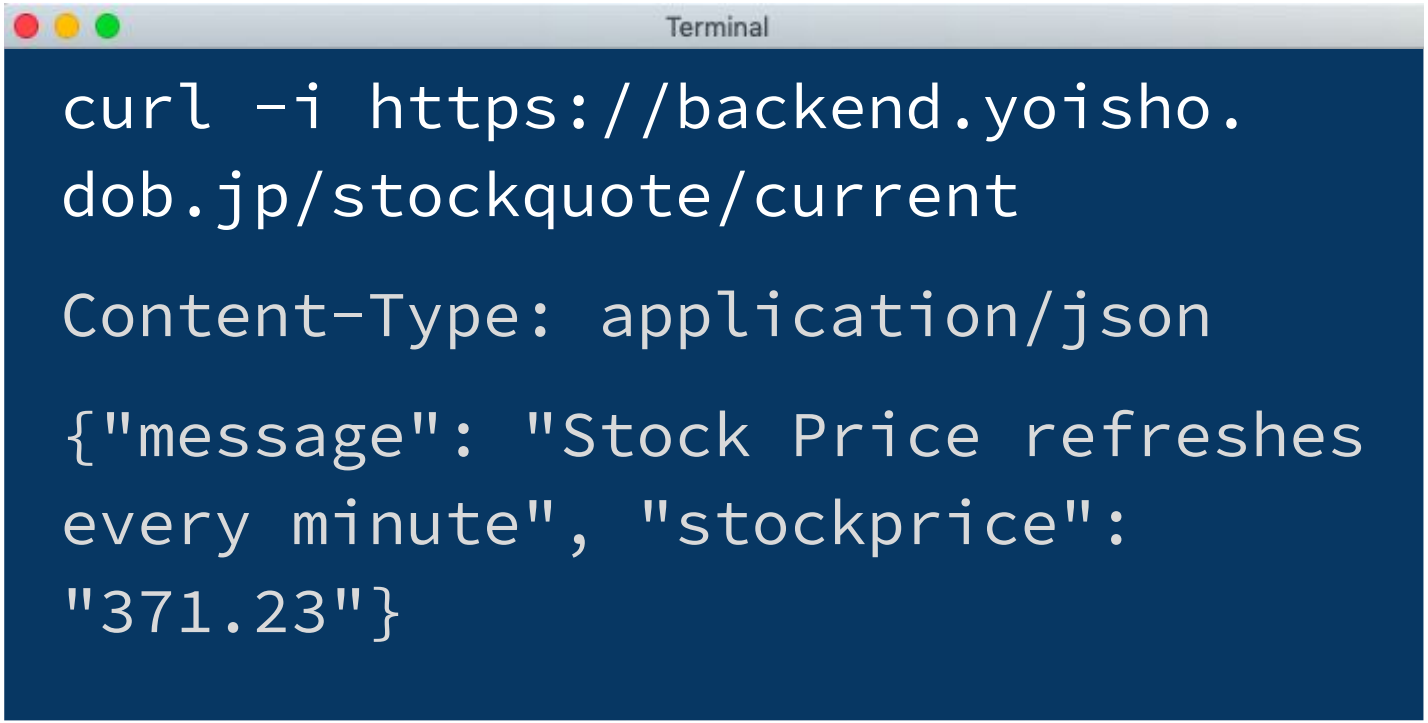
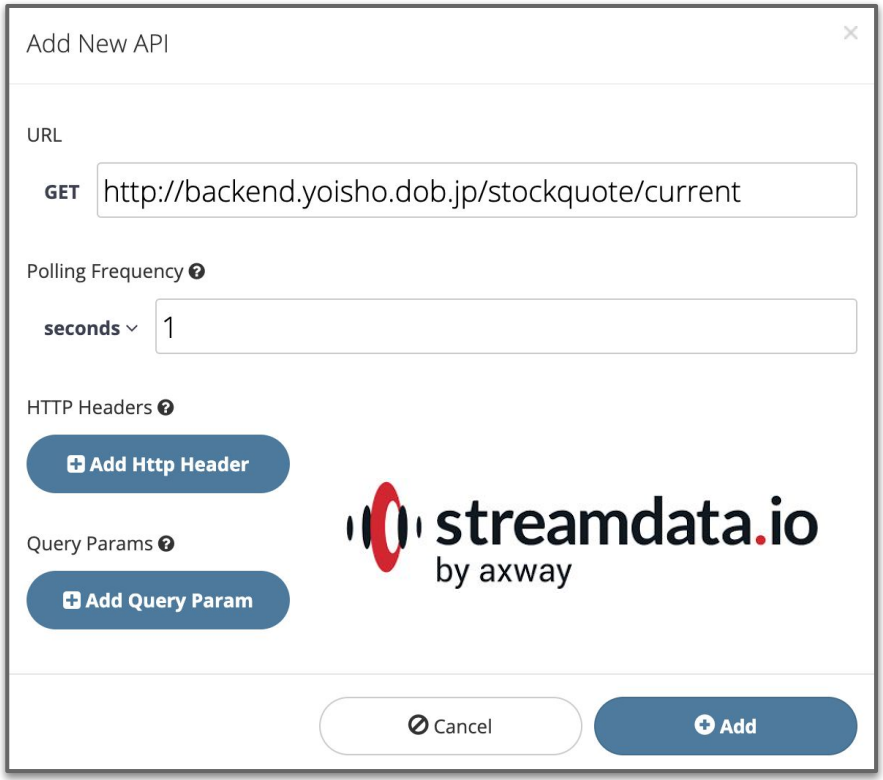
Example with cURL



Creating a Streaming API



We get a ‘proxied’ API endpoint

```
https://streamdata.motwin.net/h
ttps://backend.yoisho.dob.jp/st
ockquote/current?X-Sd-Token=ZTx
lMHZmNzgtN2UxZS00NDZhLWEzM1QtZT
MxMmFHMzJl7DQy
```

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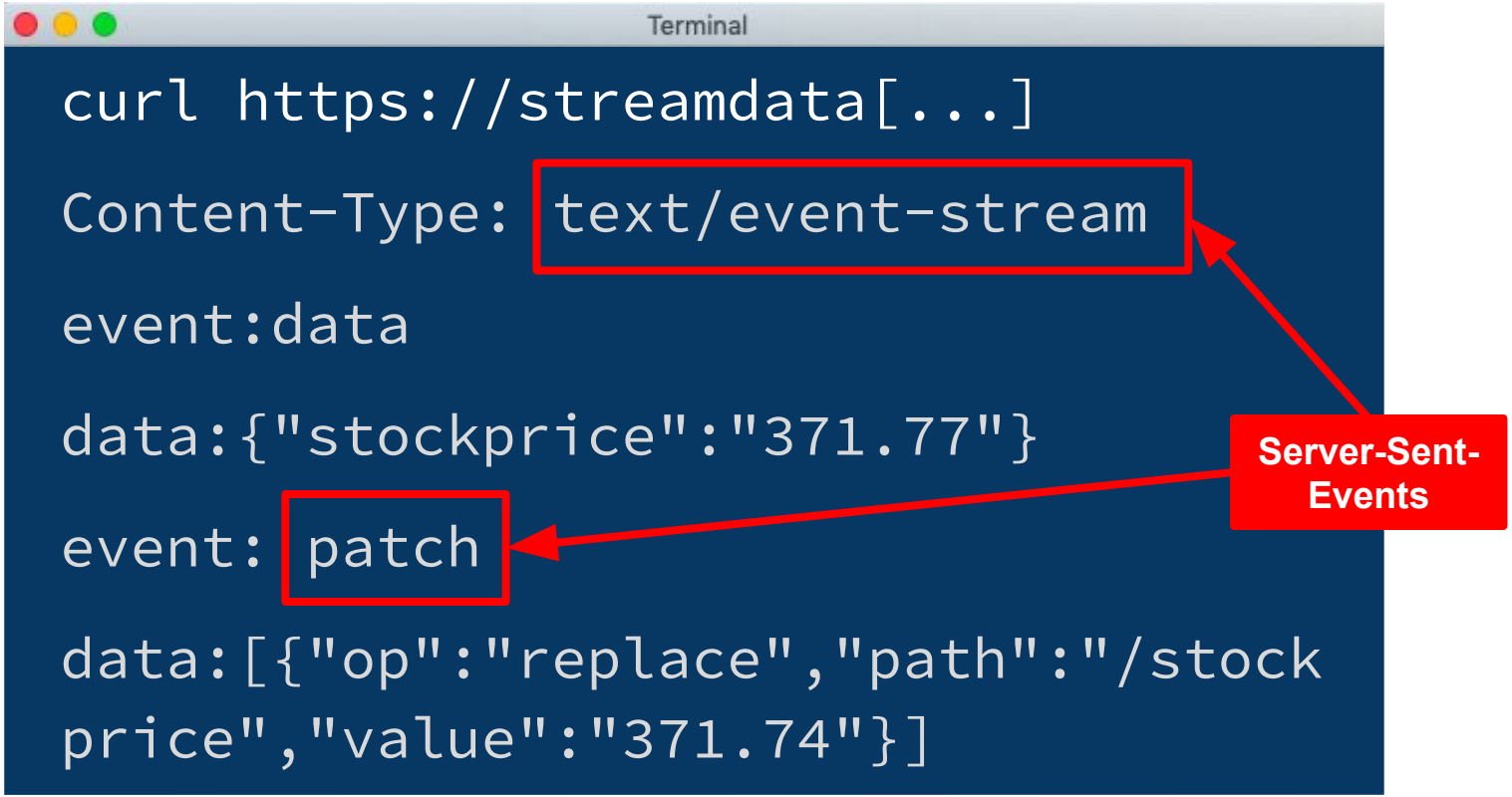
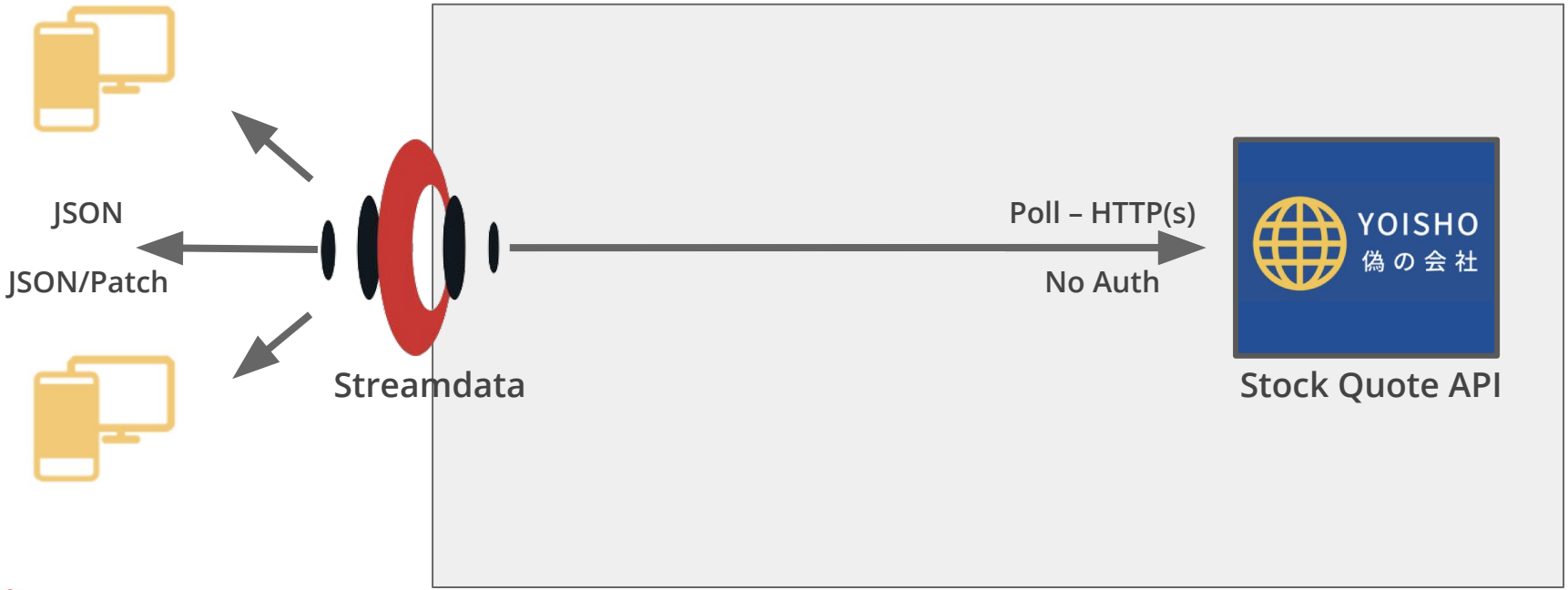
Consuming the new API



Use Case – Setup



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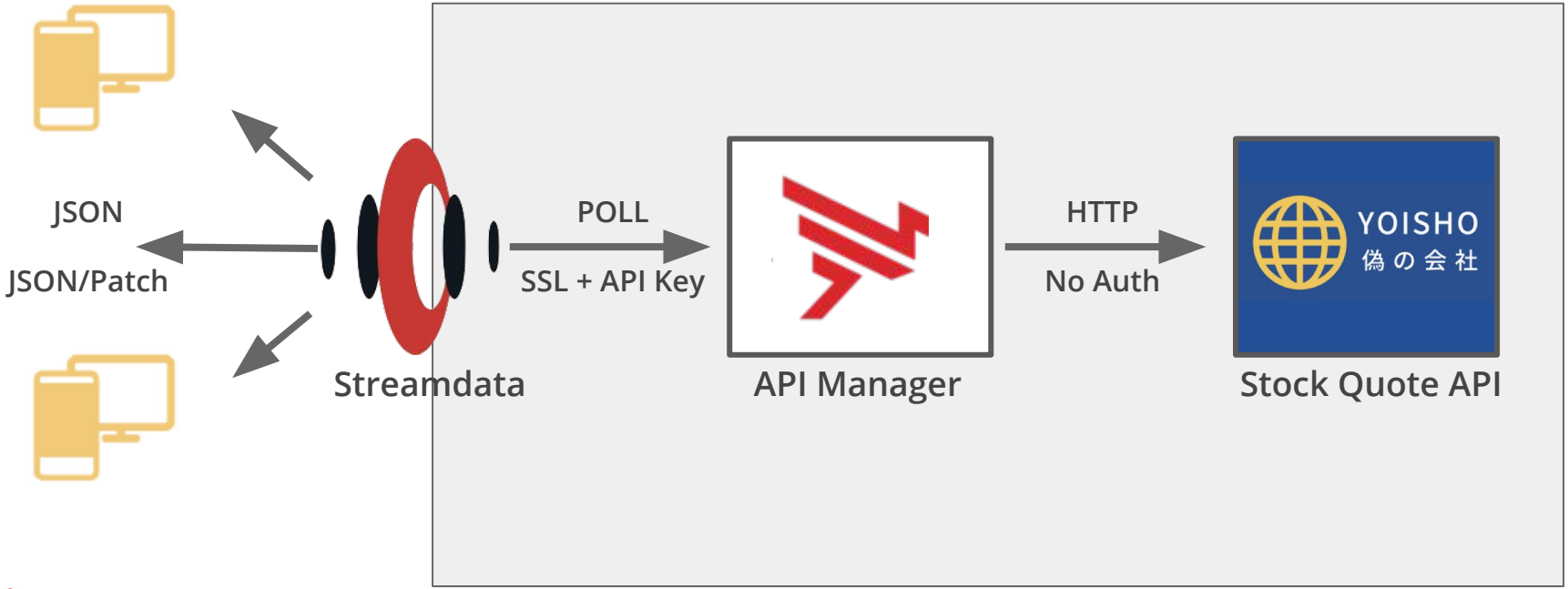
Add Security



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Your Turn!

- **Use:** Uli’s Open Banking APIs
- **Try it out:** streamdata.io
- **Join & Share:** Participate at Meetups & Get Involved

/u1i