Evolving your APIs

A step-by-step approach

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Me, myself and I

- Developer
- Developer advocate

Your first API

- Probably focused on REST(ful) semantics

We need to deploy v2!

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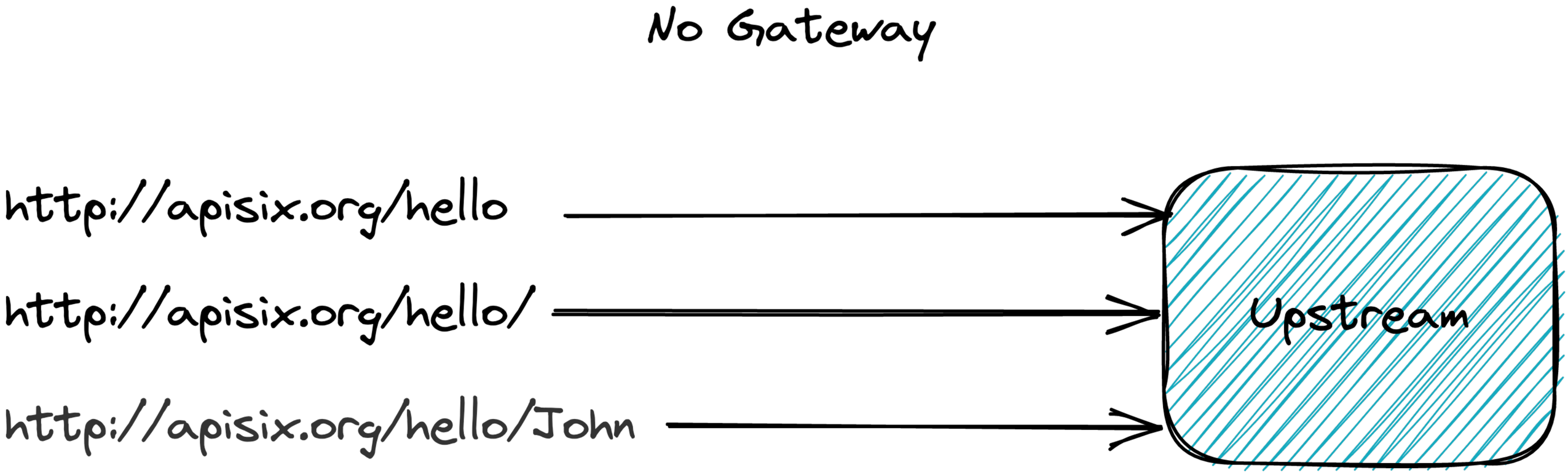
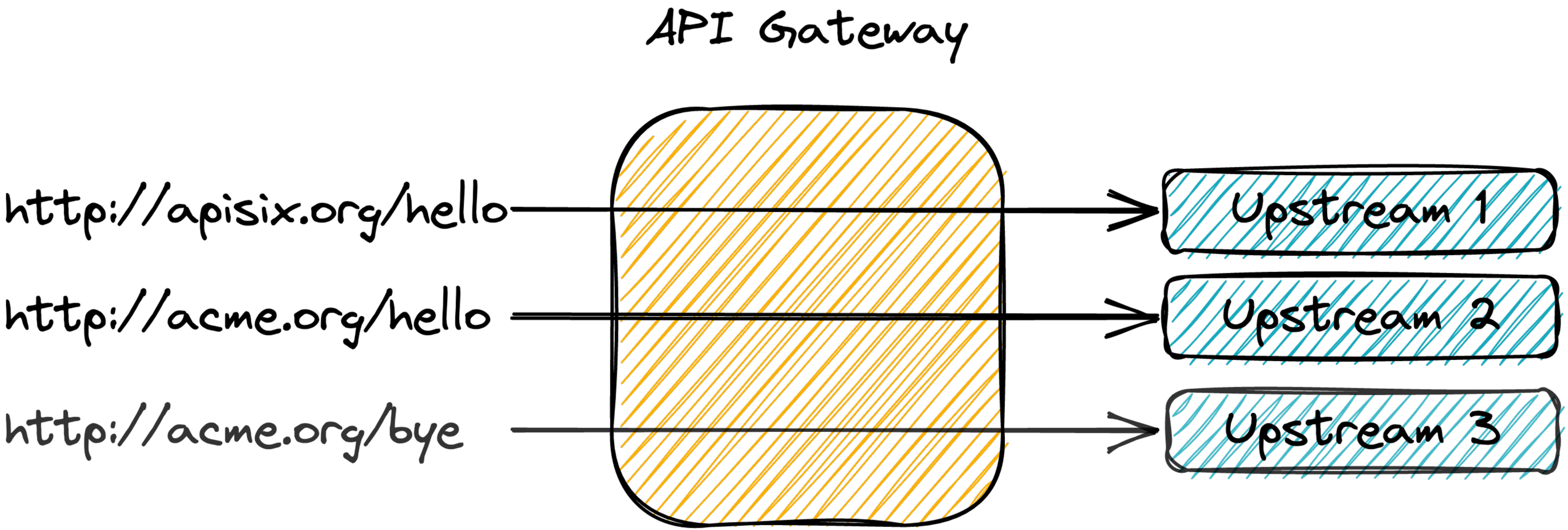
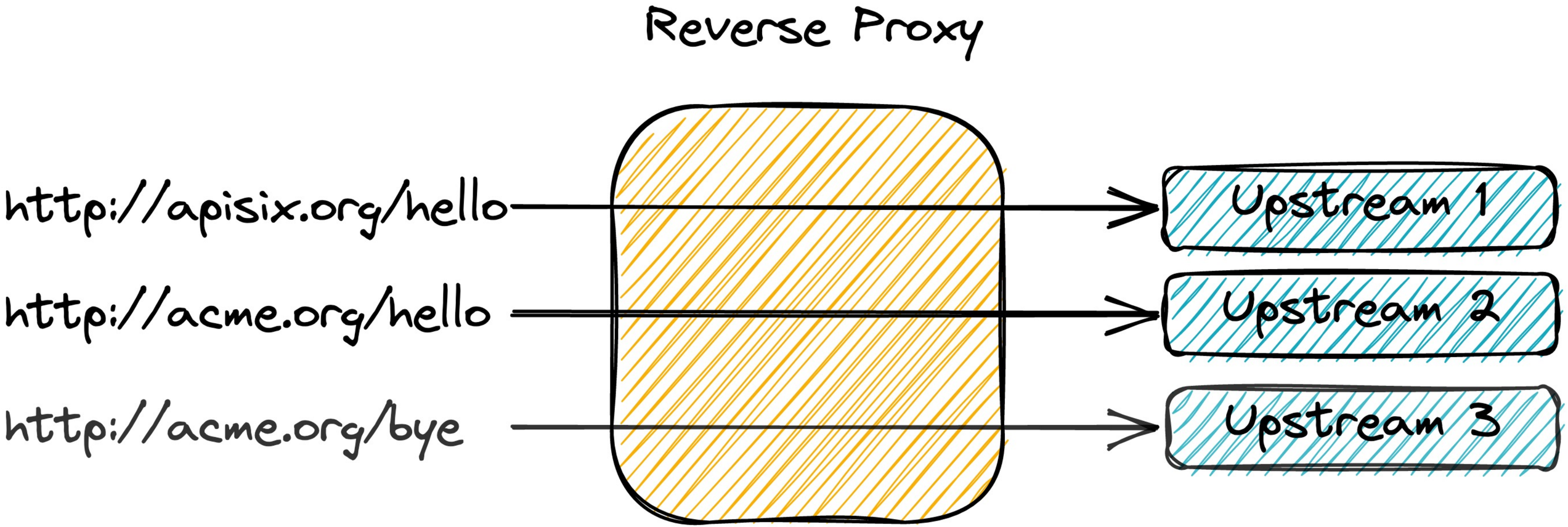
Step 1 – The initial situation



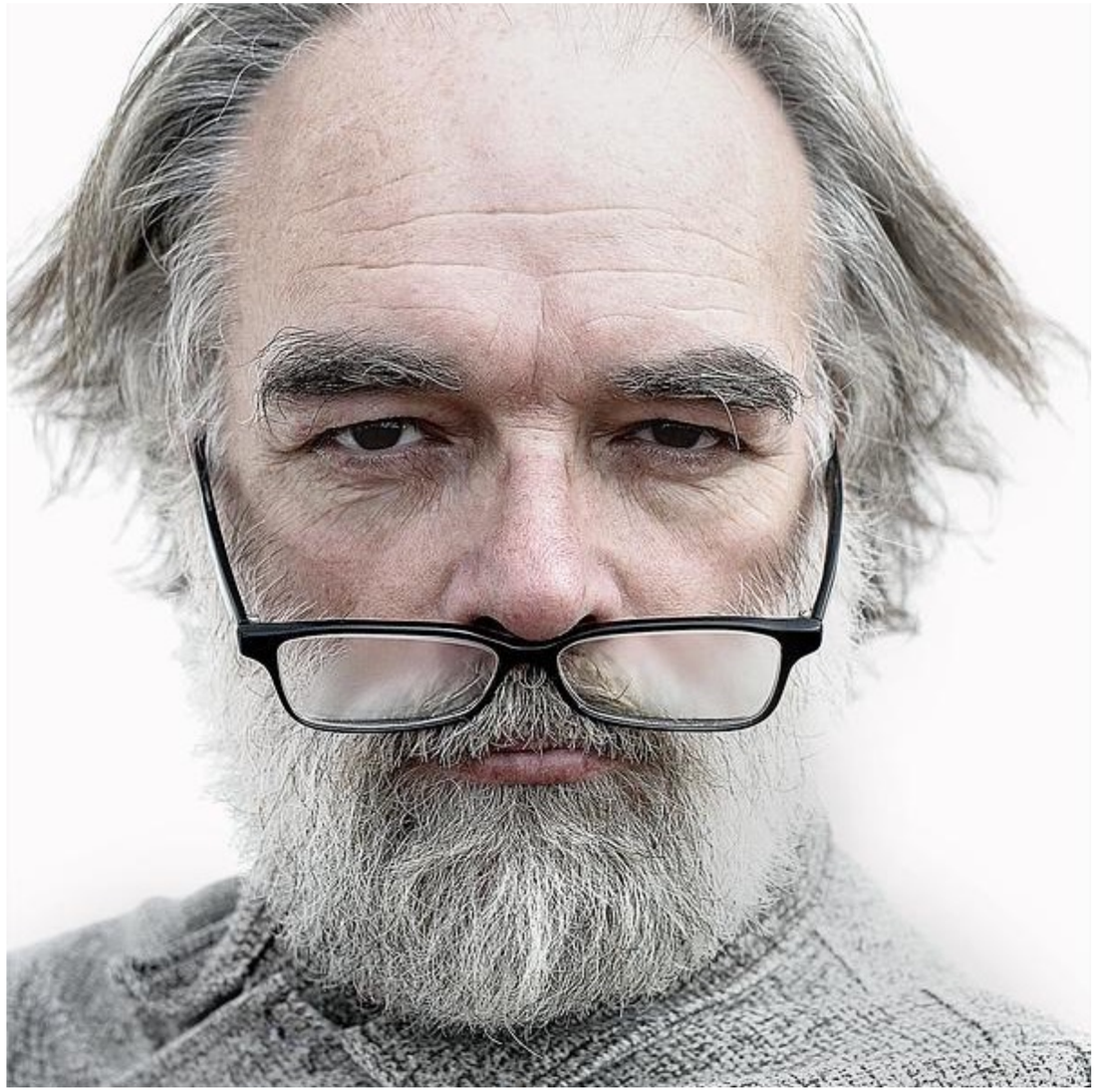
An API Gateway can help!



But we have a reverse proxy

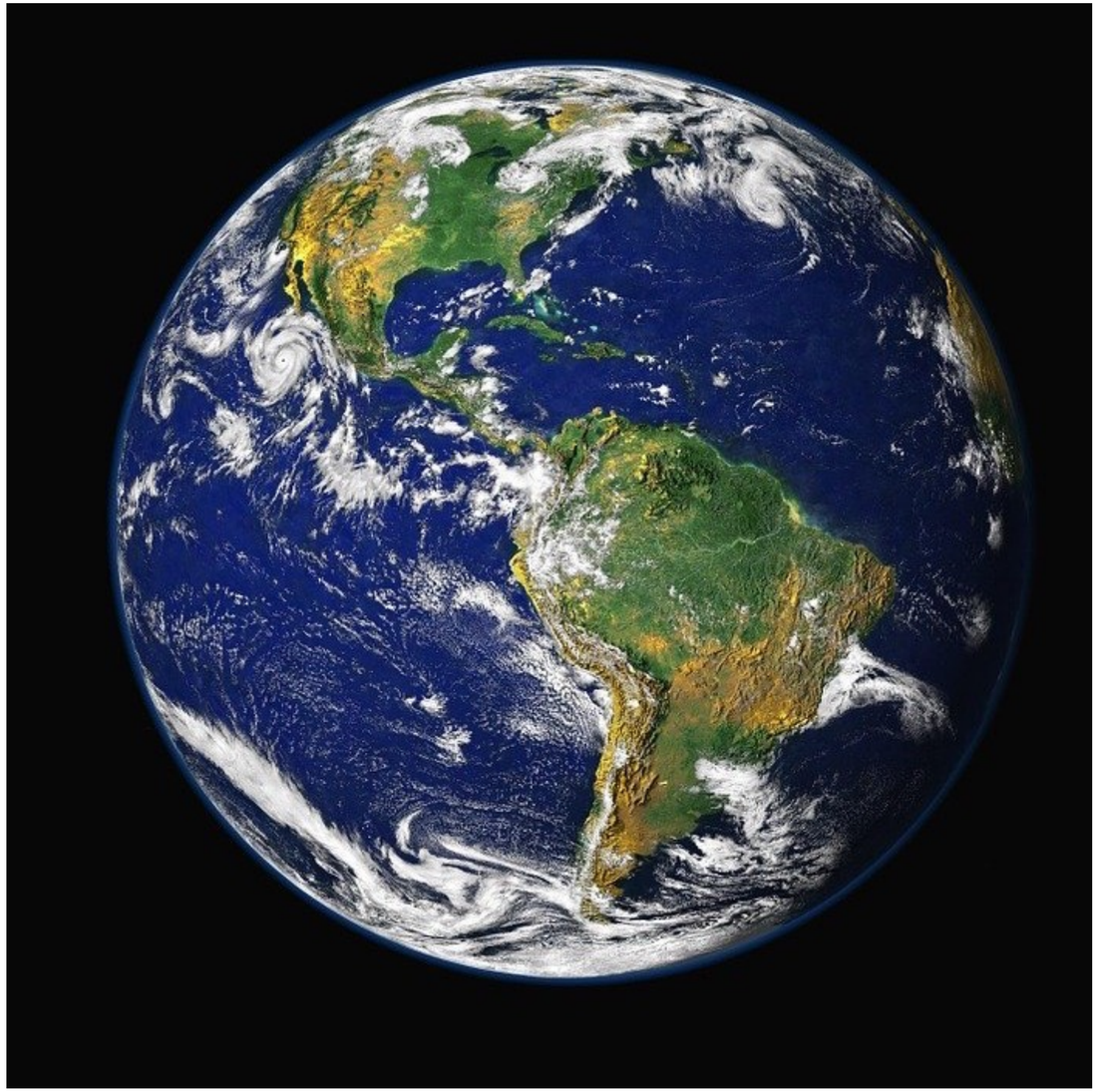


Let’s go back a bit



- I started to use the Internet a bit before 2000

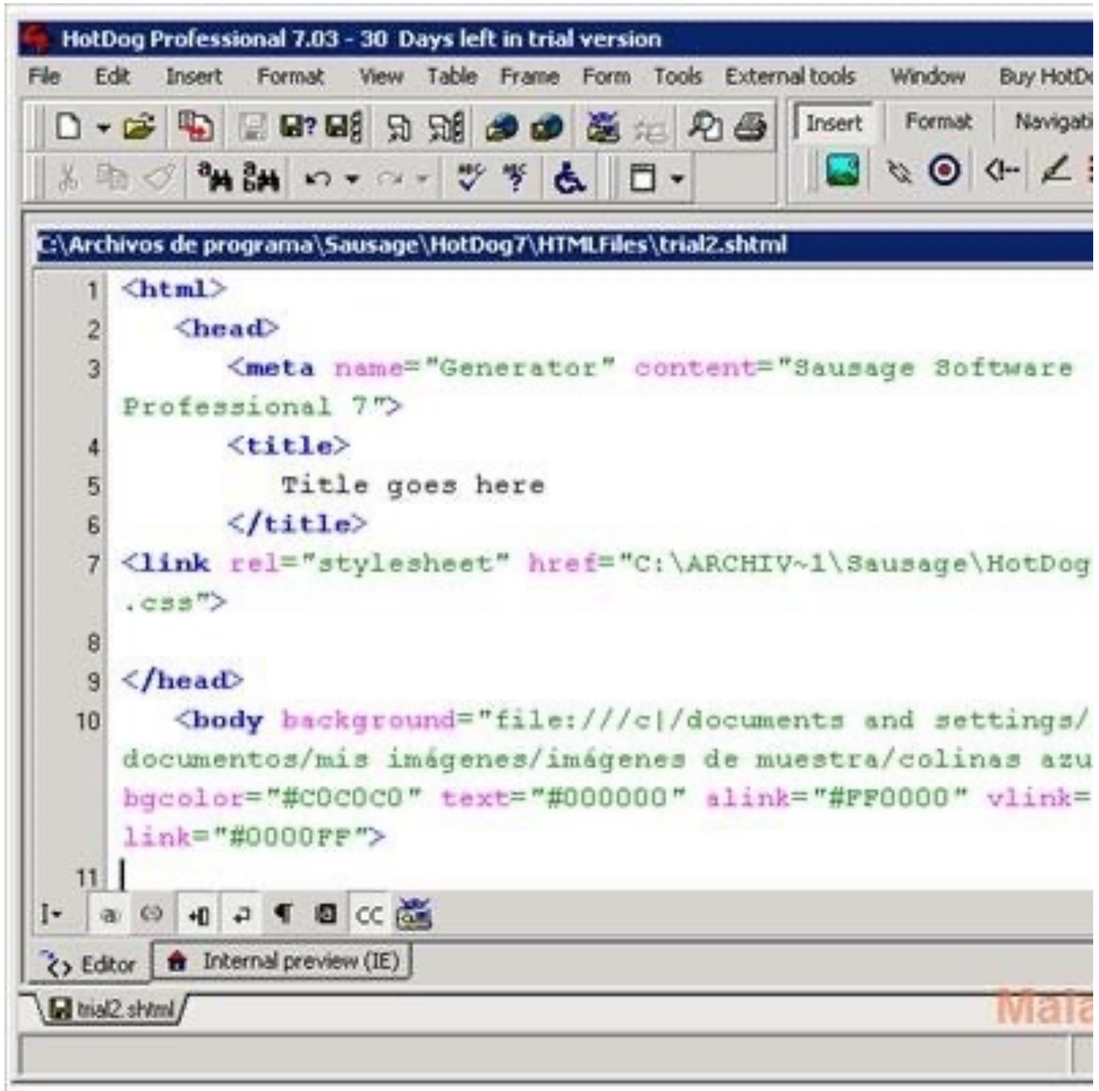
Internet > World Wide Web



- WWW
  - Hypertext document management system accessed over the Internet
- Internet
  - Global system of interconnected computer networks that uses TCP/IP to communicate

My first website

- HTML:
  - With images
  - With MIDI audio
  - No CSS
  - No JavaScript



Web server

- Serve static content

Personal Home Page

- Apache Web Server
- People wanted more dynamic content
  1. CGI scripts
  2. PHP

The rise of WWW

- Companies started to use it as an official communication channel
  - Redundancy
  - Load balancing

WWW becomes ubiquitous

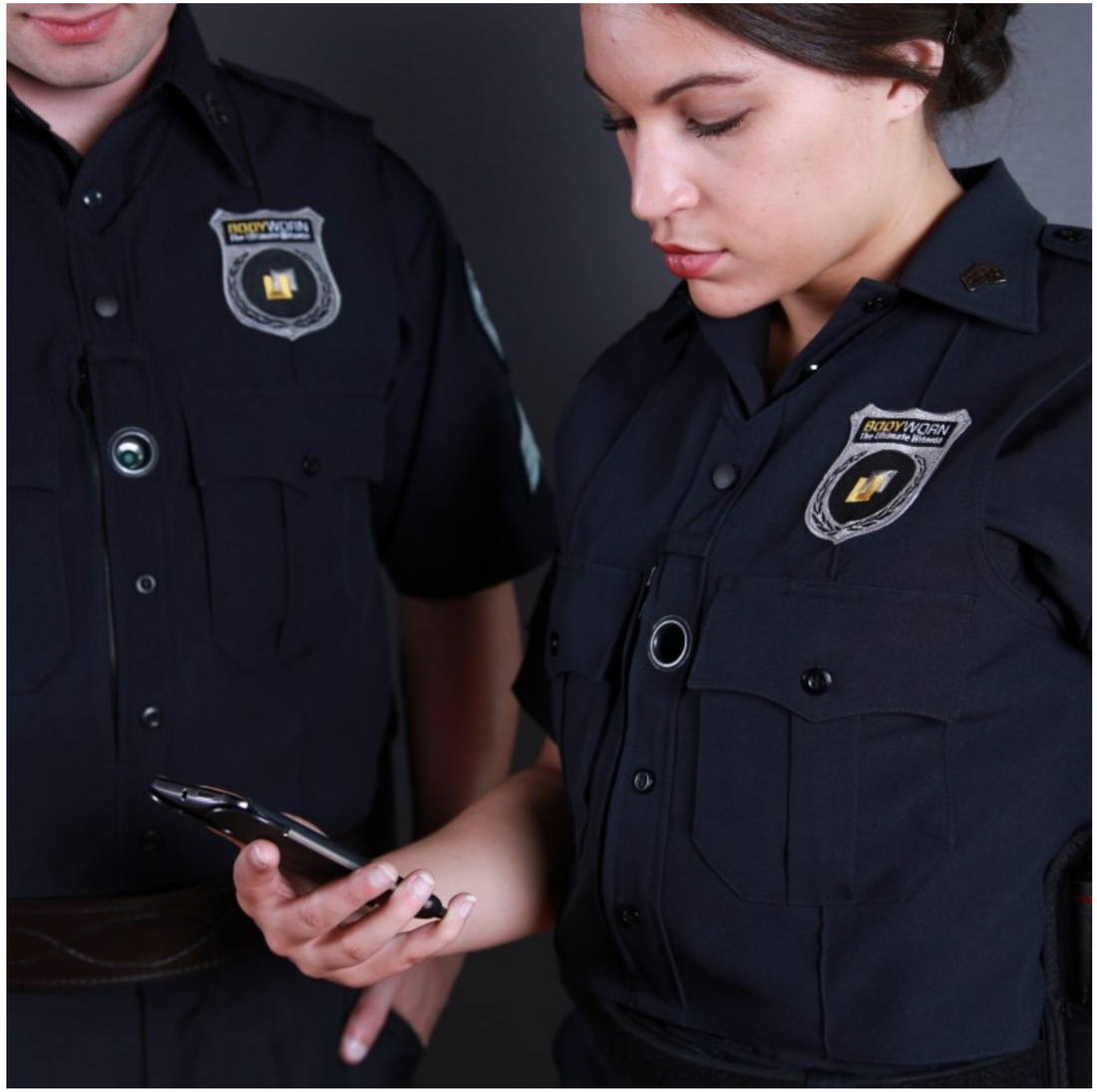
- More unrelated nodes
  - Routing

The evolution of the Web Server

1. Serve static content
2. Serve dynamic content
3. Load balancer
4. Routing

Reverse Proxy: Single Point of Entry

- Any cross-concern feature
  - Authentication
  - Authorization
  - Caching
  - IP Blocking



Interconnecting heterogeneous Information Systems

- File sharing with FTP
- Synchronous communication inside a tech stack
- Synchronous communication via HTTP

API Gateway

- Specialized Reverse Proxy
- Features dedicated to APIs
  - Billing
  - Complex rate-limiting
  - Etc.

API Gateways

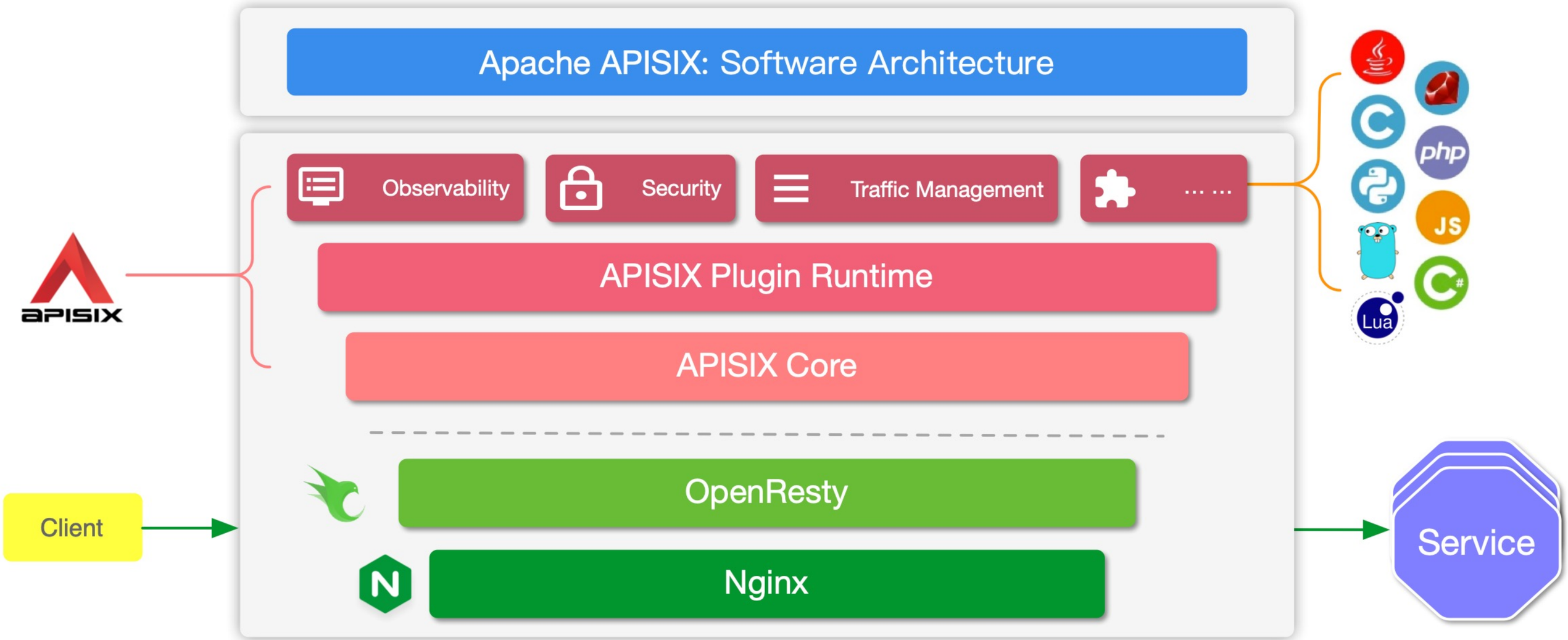
- Apache APISIX
- Kong Gateway
- Tyk
- Gloo
- Ambassador
- Gravitee

Apache APISIX

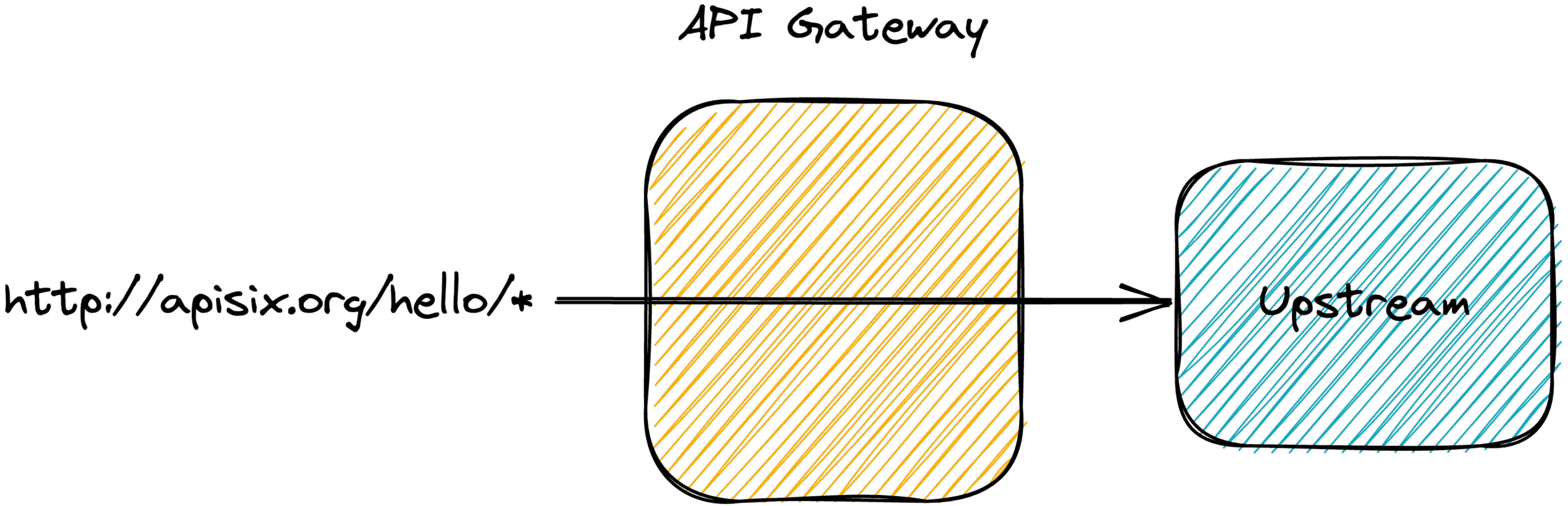
THE APACHE™ SOFTWARE FOUNDATION

- Donated to the Apache Foundation in 2019
- Became a Top-Level Project in 2020

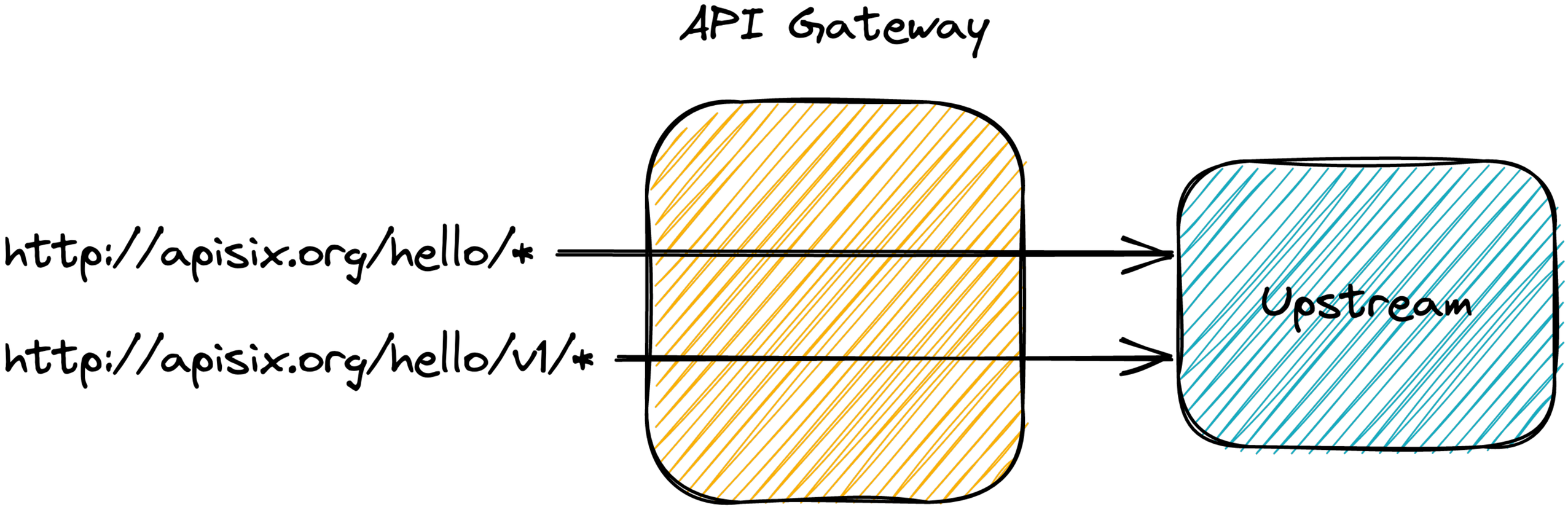
Apache APISIX, an API Gateway the Apache way



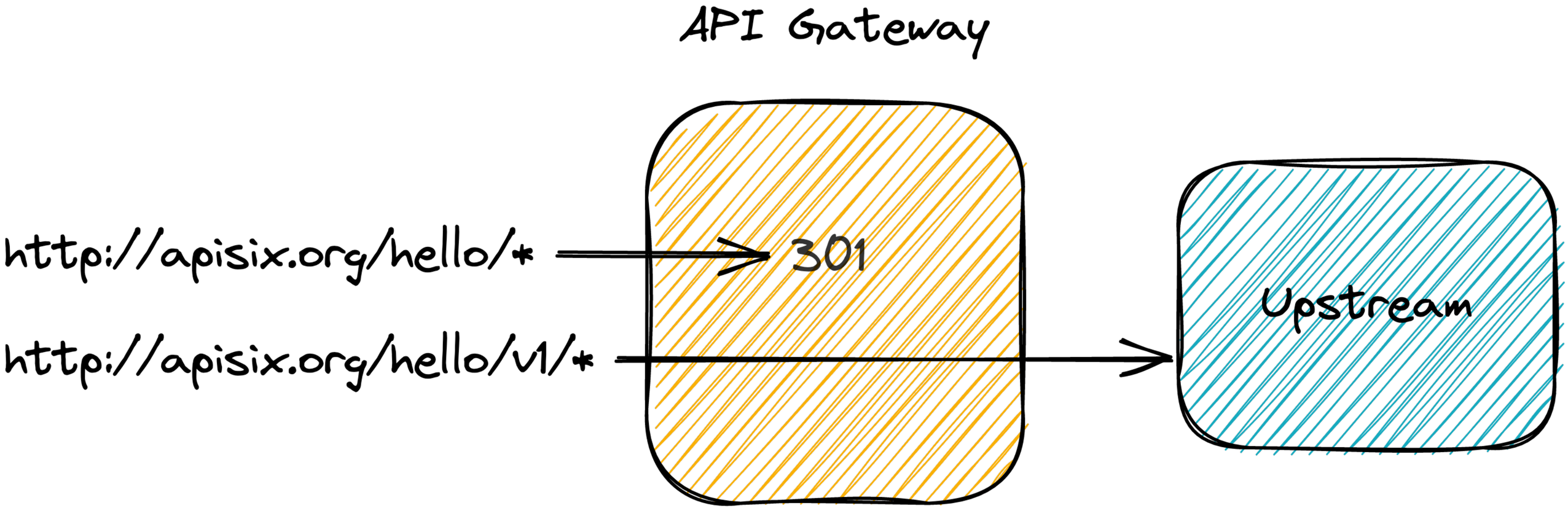
Step 2 – Introduce an API Gateway



Step 3 – Introduce a versioned resource

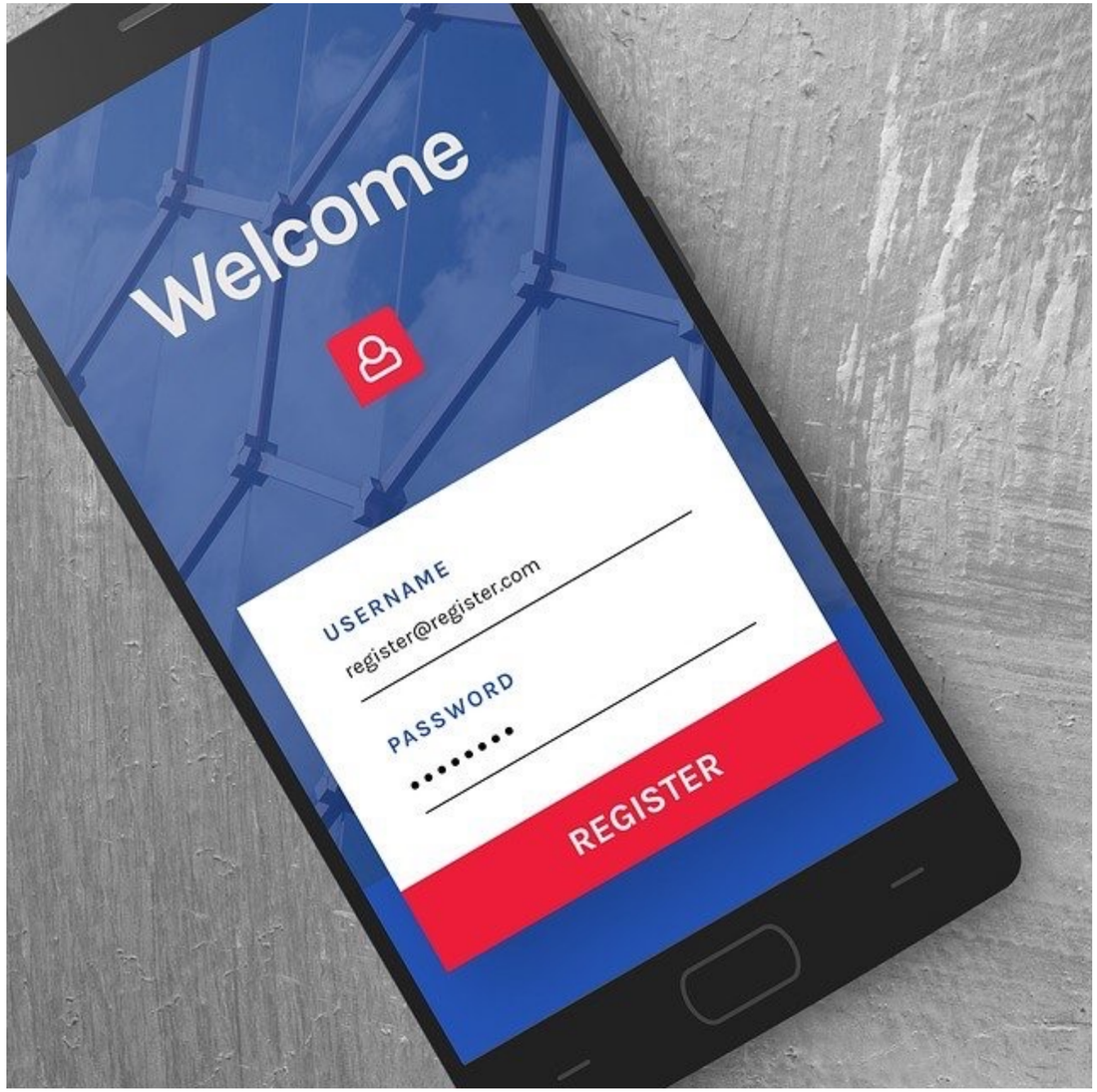


Step 4 – Move the unversioned resource permanently

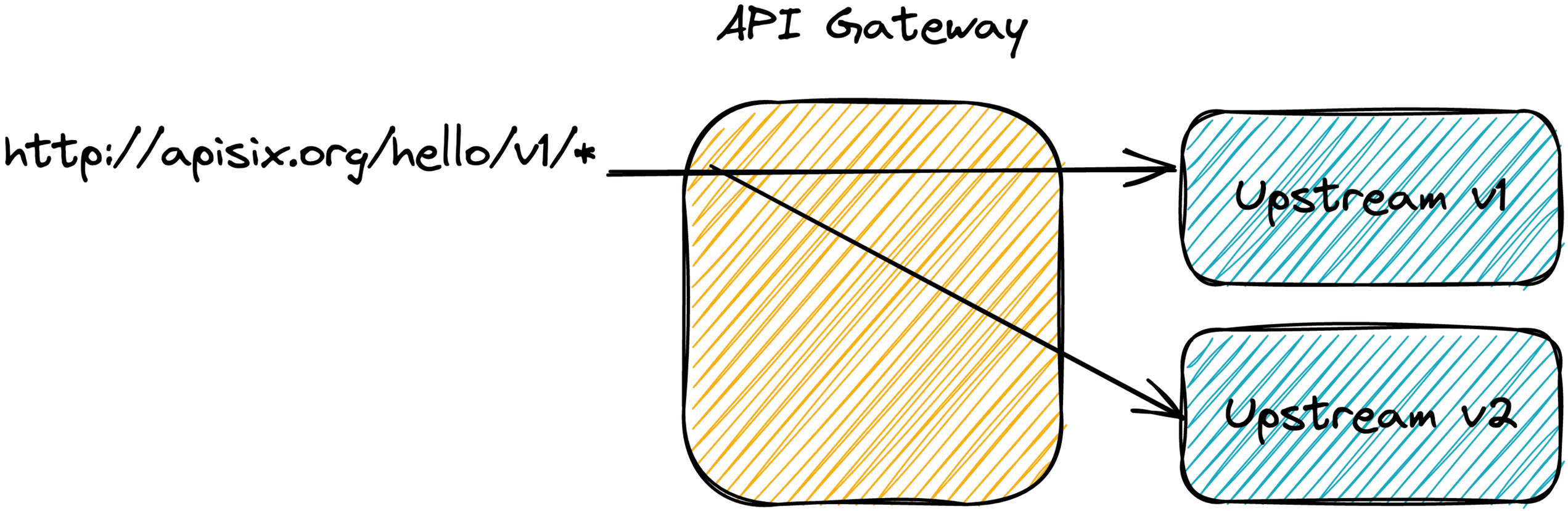


Step 5 – Make users register

- Hard to change because we don’t know our users
- But developers don’t like to register
- Provide them an incentive
  - 429



Step 6 – Test in production but be smart about it



Step 7 – Use proven deployment methods

- Canary release for the win

Step 8 – Deprecate your endpoints

- IETF Draft
- `Deprecation` header
  - Date or Boolean
- `Link` header to point to the new resource
- `Sunset` header

Step 9 and afterwards – Time for v3!

Thanks for your attention!

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- https://bit.ly/evolve-apis
- https://apisix.apache.org/