

Deploy and Secure Your API Gateway with NGINX

From Zero to Hero

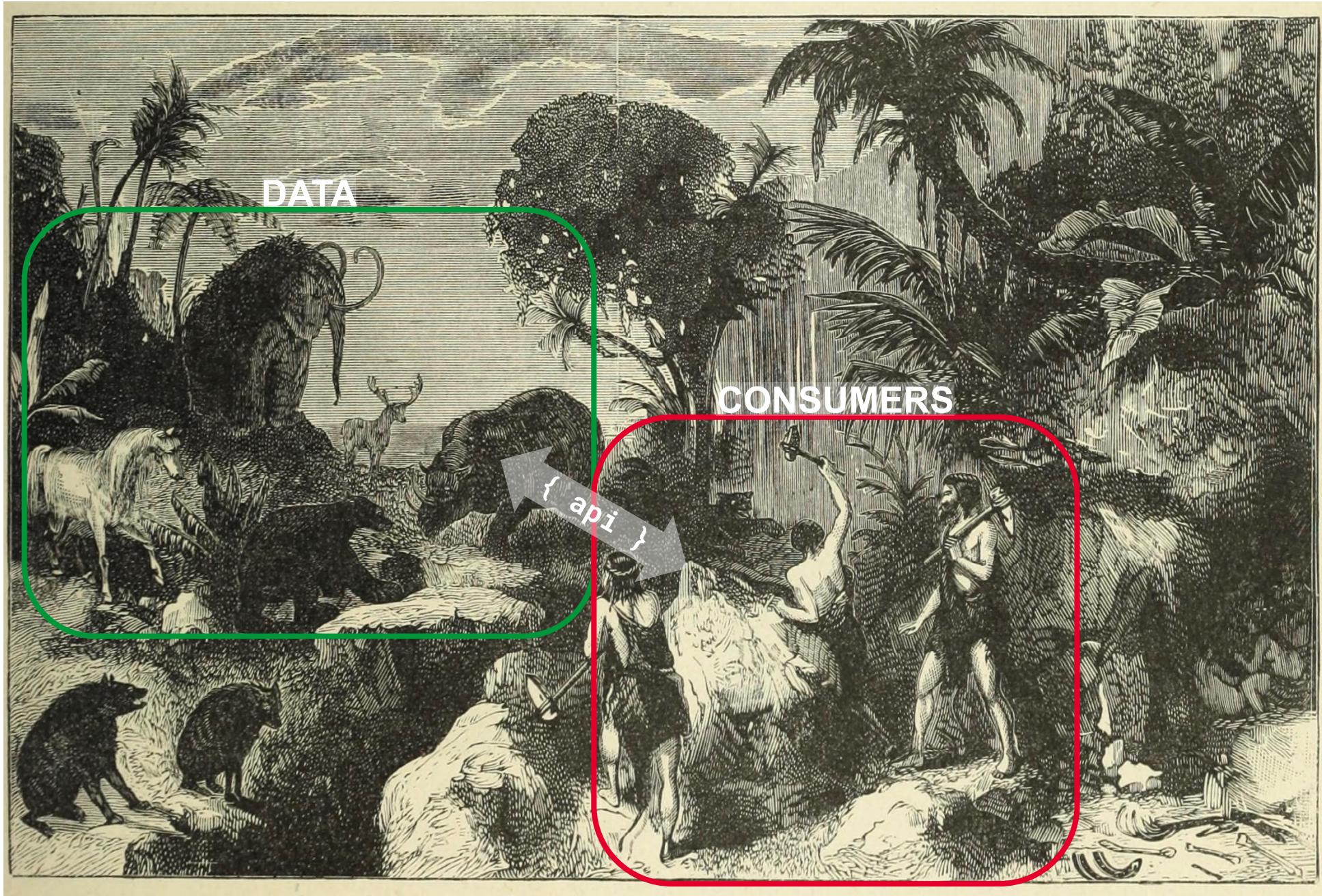
Alessandro Fael Garcia

Senior Solutions Engineer

Agenda

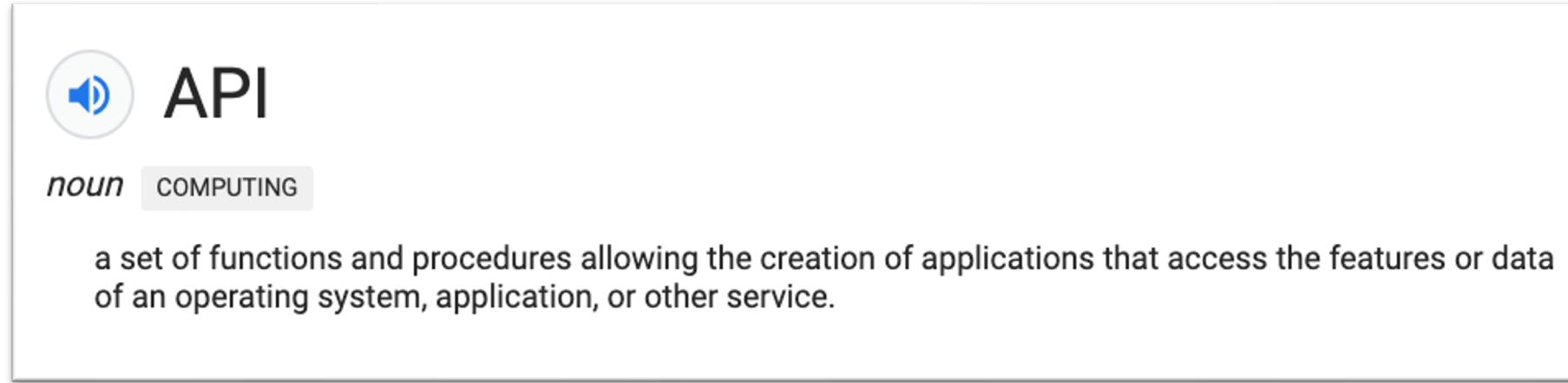
- What is a (REST) API?
- API fundamentals, or why are users & developers exponentially adopting an API first model?
- What are API gateways and how do they help deliver mission-critical digital experiences?
- Deploying NGINX as an API gateway
- Securing an API gateway using NGINX App Protect WAF
- Demo! (Available at <https://github.com/alessfg/nginx-api-gateway-demo>)

What is a (REST) API?



API (endpoint) -> Application Programming Interface

Easy to consume data



Developers provide dedicated URLs that are optimized to return pure data to requesting clients

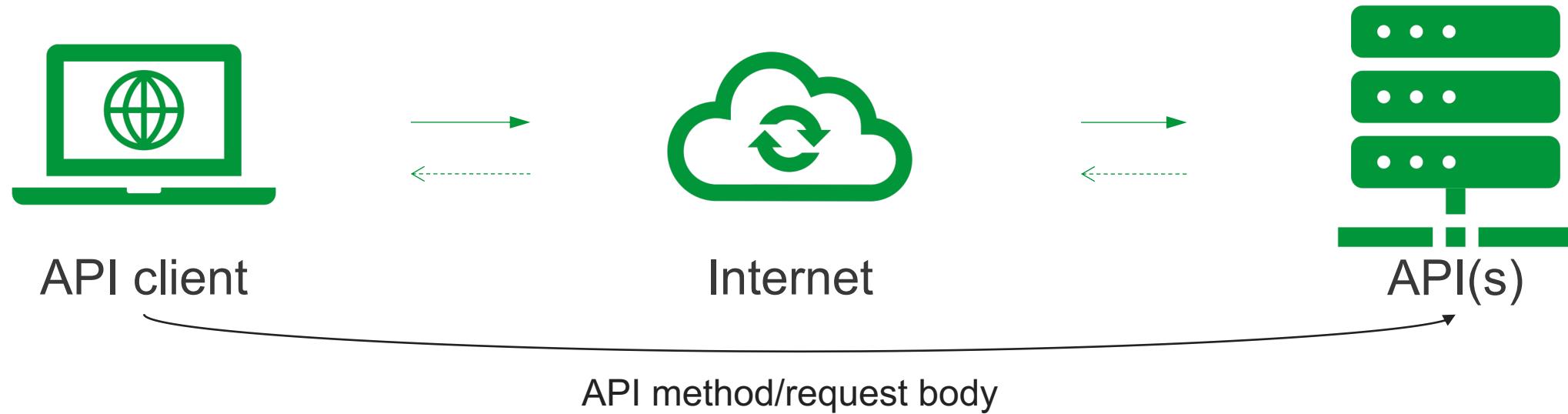
Web client → Web server → Request returns HTML

API client → API endpoint → Request returns data

Components of an API request

- a) API (endpoint) -> URL
- b) API method -> type of operation to conduct on the API endpoint
- c) API request body -> if sending data via POST/PUT method
- d) API client -> curl, postman, client application, etc...

Lifecycle of an API request

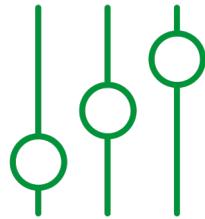


```
$ curl -s -X GET https://pokeapi.co/api/v2/pokemon/pikachu | jq  
'types'  
[  
 {  
   "slot": 1,  
   "type": {  
     "name": "electric",  
     "url": "https://pokeapi.co/api/v2/type/13/"  
   }  
 }  
]
```

API Fundamentals

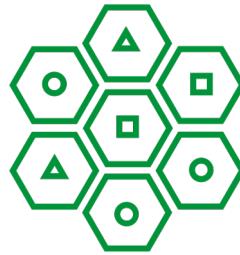
Why are users & developers using more APIs over time?

Drivers behind API adoption



Ease access to information

- Break down siloes and unlock data (within and among organizations)
- Increase collaboration amongst developers



Connect microservices

- Primary interface for communication amongst microservices
- Simple development and maintenance
- Fault isolation and resiliency



Create new digital revenue streams

- New opportunities to generate revenue
- Build partnerships with third-party developers and business ecosystem

Progress in digital transformation

F5's State of Application Strategy 2021 Report



Phase 1:
Task Automation

25%

↓ From 45% in 2020



Phase 2:
Digital Expansion

57%

↑ From 37% in 2020



Phase 3:
AI-Assisted Business

56%

↑ From 17% in 2020

Modernization methods

F5's State of Application Strategy 2021 Report

Adding a layer of APIs to enable modern user interfaces

58%

Adding modern application components e.g. kubernetes

51%

Refactoring (modifying the application code itself)

47%

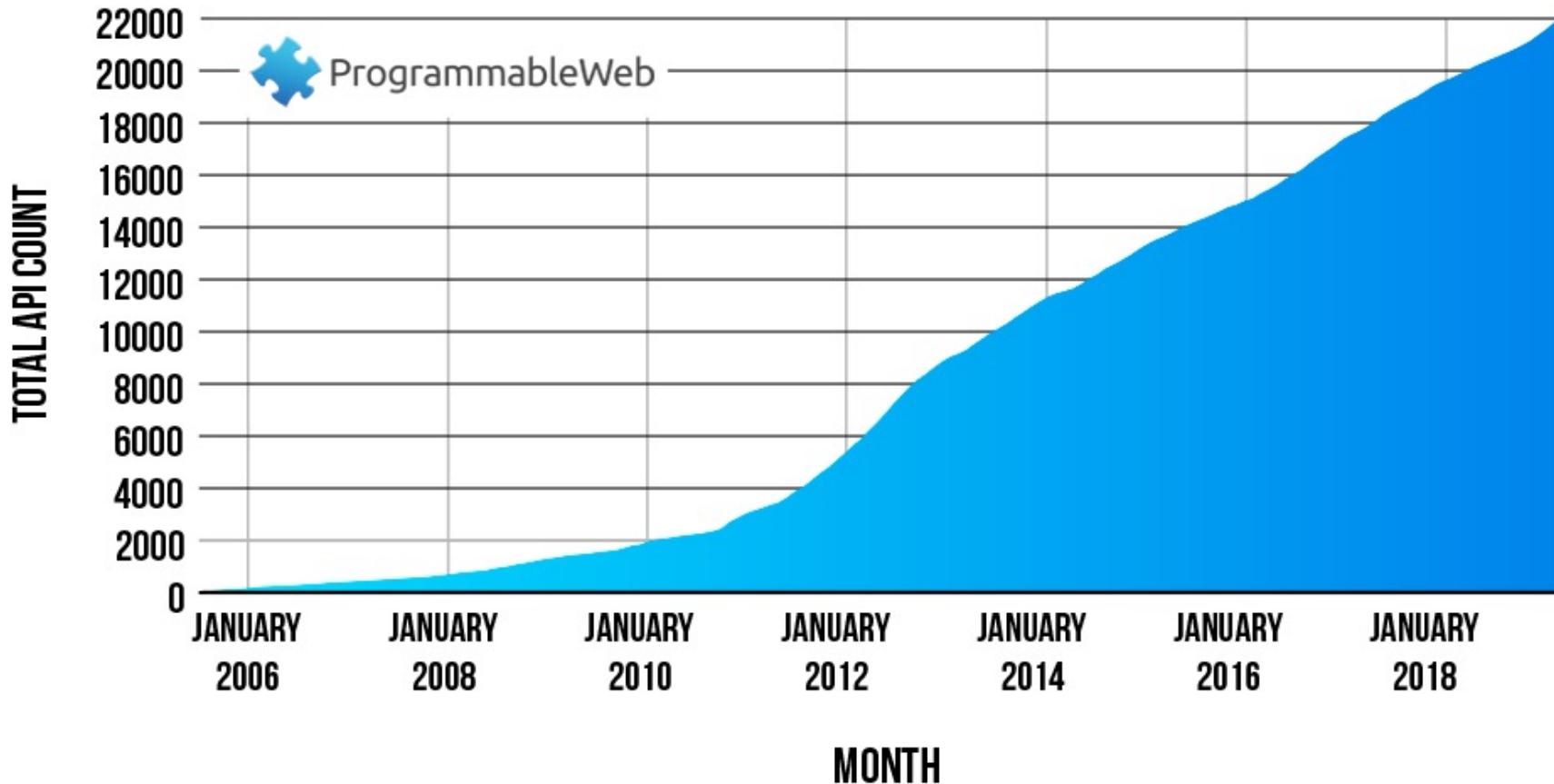
Moving to public cloud (lift and shift) but not modernizing

40%

The rise of APIs

APIs are experiencing explosive growth

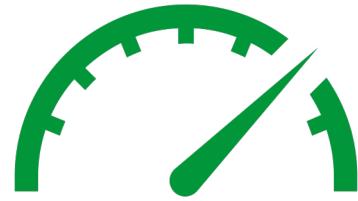
GROWTH IN WEB APIs SINCE 2005



API essentials

Users & Consumers

Ease of use



Low latency



Security



Documentation



API essentials

Owners & Developers

Revenue growth



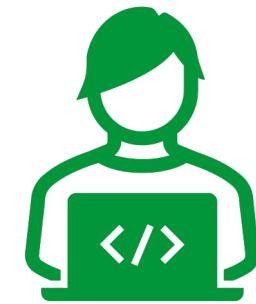
User experience



Brand protection



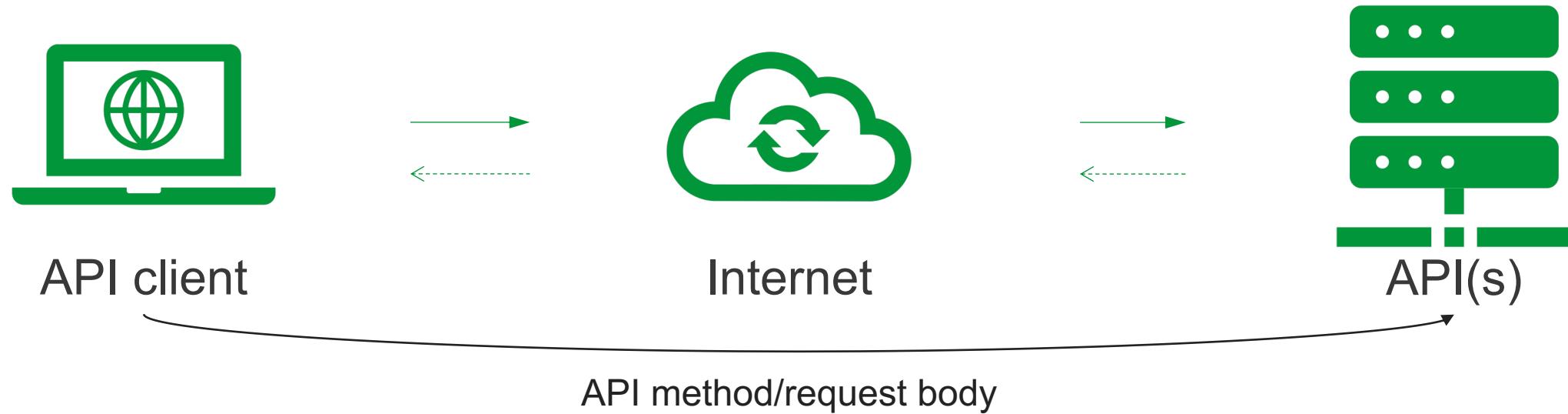
Developer productivity



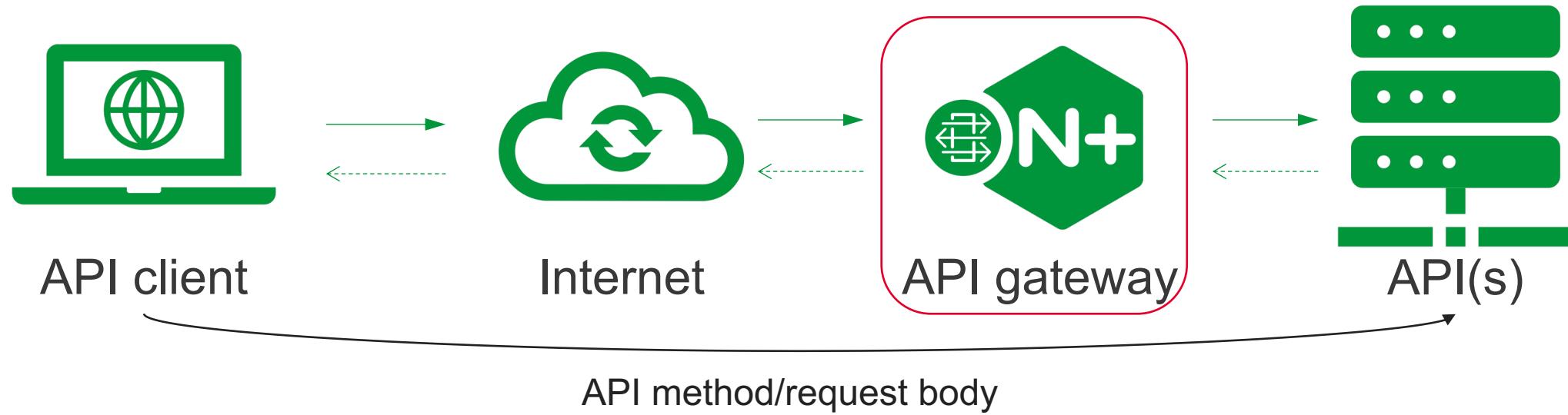
API Gateways

Deliver mission-critical digital experiences

Lifecycle of an API request



Lifecycle of an API request



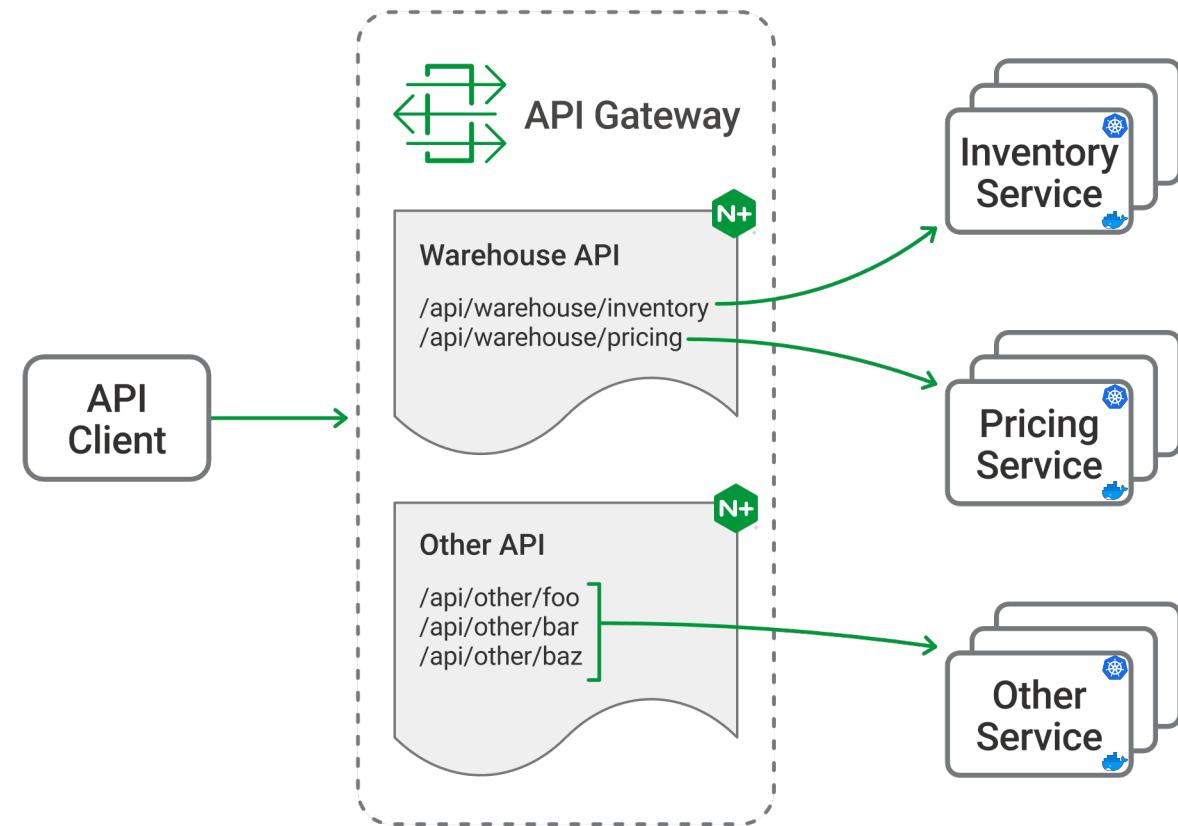


AUTHENTICATION

API gateway essentials

Control access to your APIs

- Centralized logging
- Client authentication
- Fine grained access control
- Load balancing
- Rate limiting
- Request routing
- Request/response manipulation
- Service discovery of backends
- TLS termination



API gateway essentials

Real-Time performance is key in digital experiences

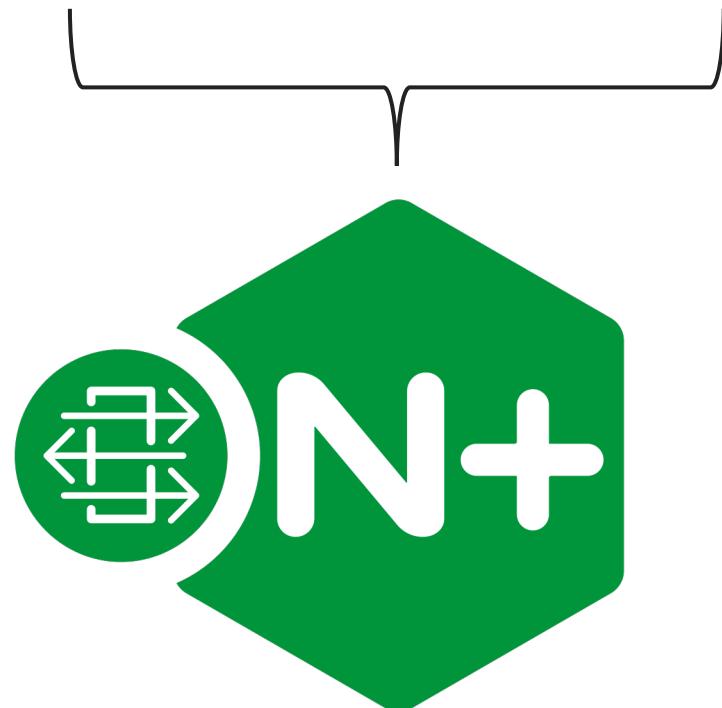
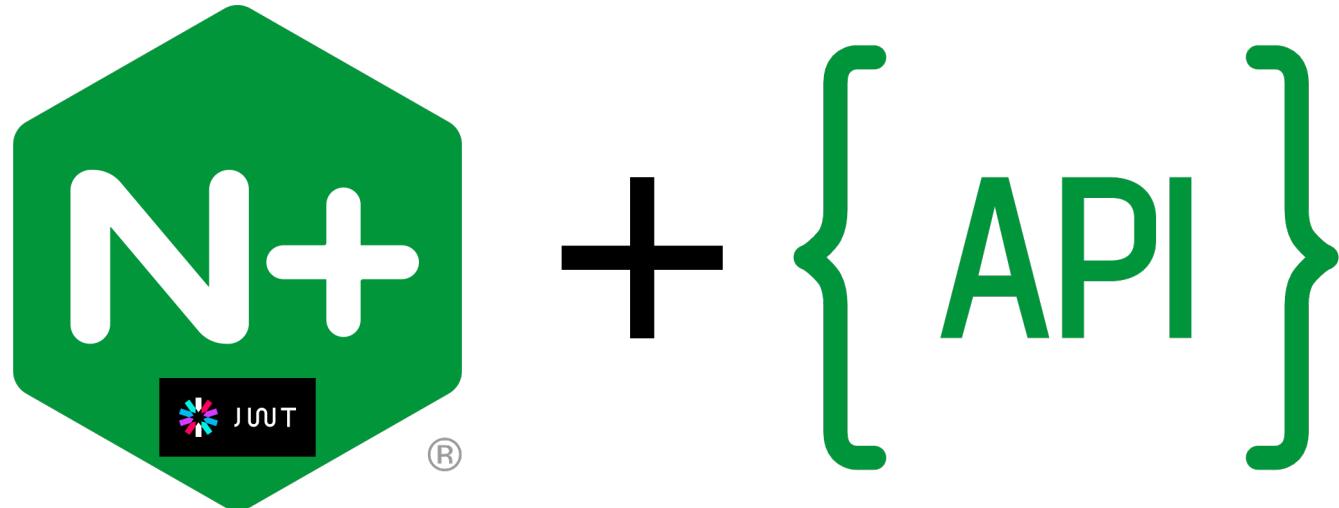
30 ms
@p99
(latency)

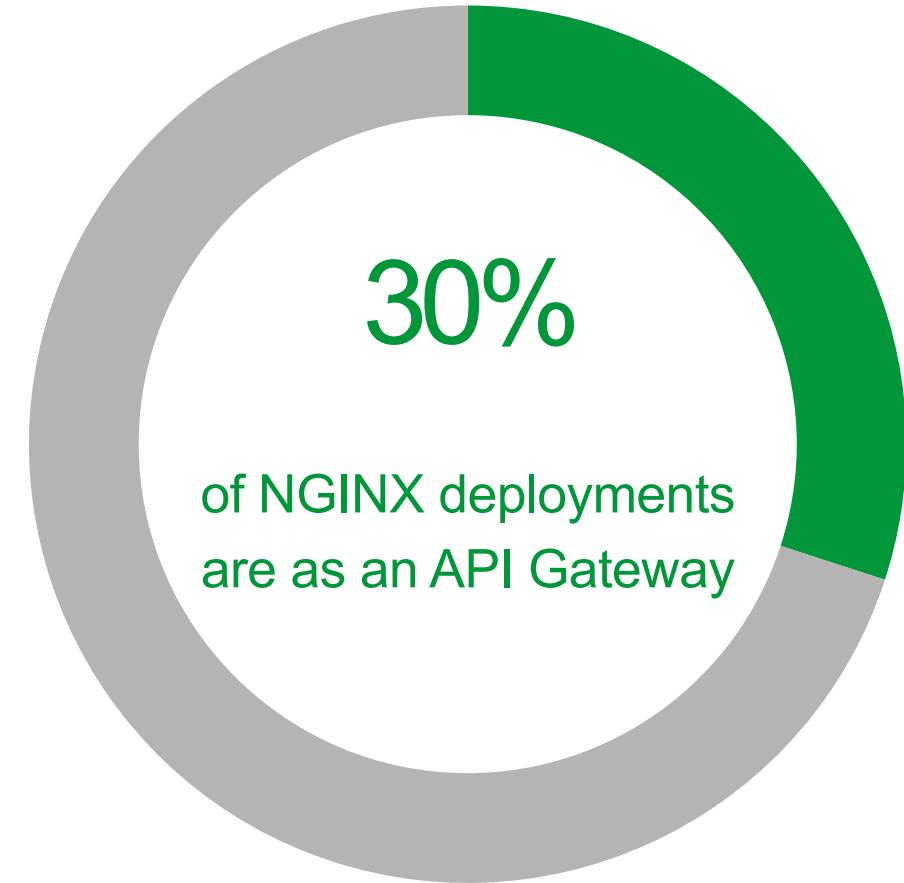
... to process
an API request
end-to-end

... to route, shape,
authenticate, secure,
and/or cache an API

NGINX Plus

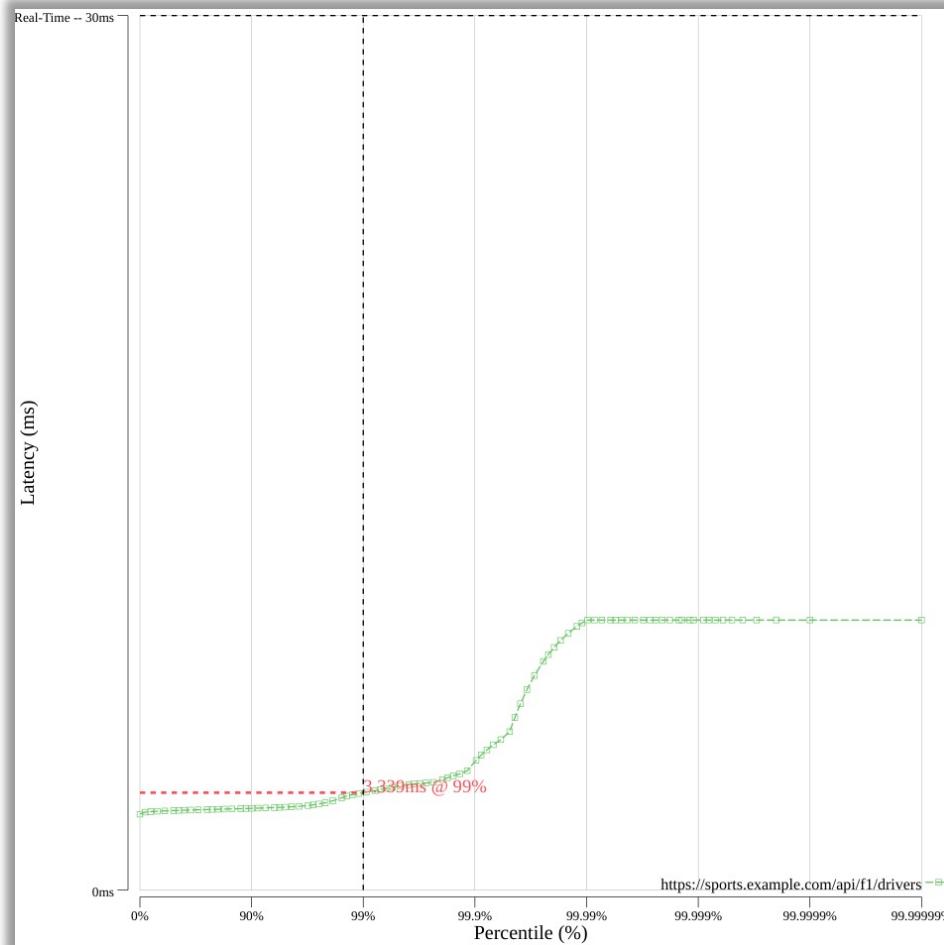
The ultimate API gateway





What makes NGINX API gateways special?

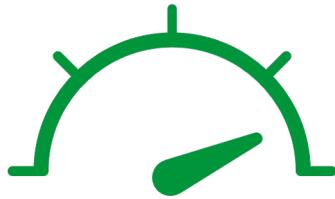
Access your APIs in less than 30ms even when using an API gateway



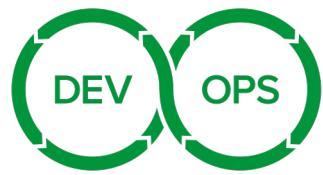


NGINX API gateways

KEY STRENGTHS



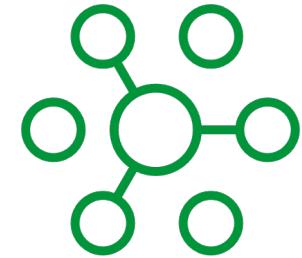
High performance



DevOps friendly



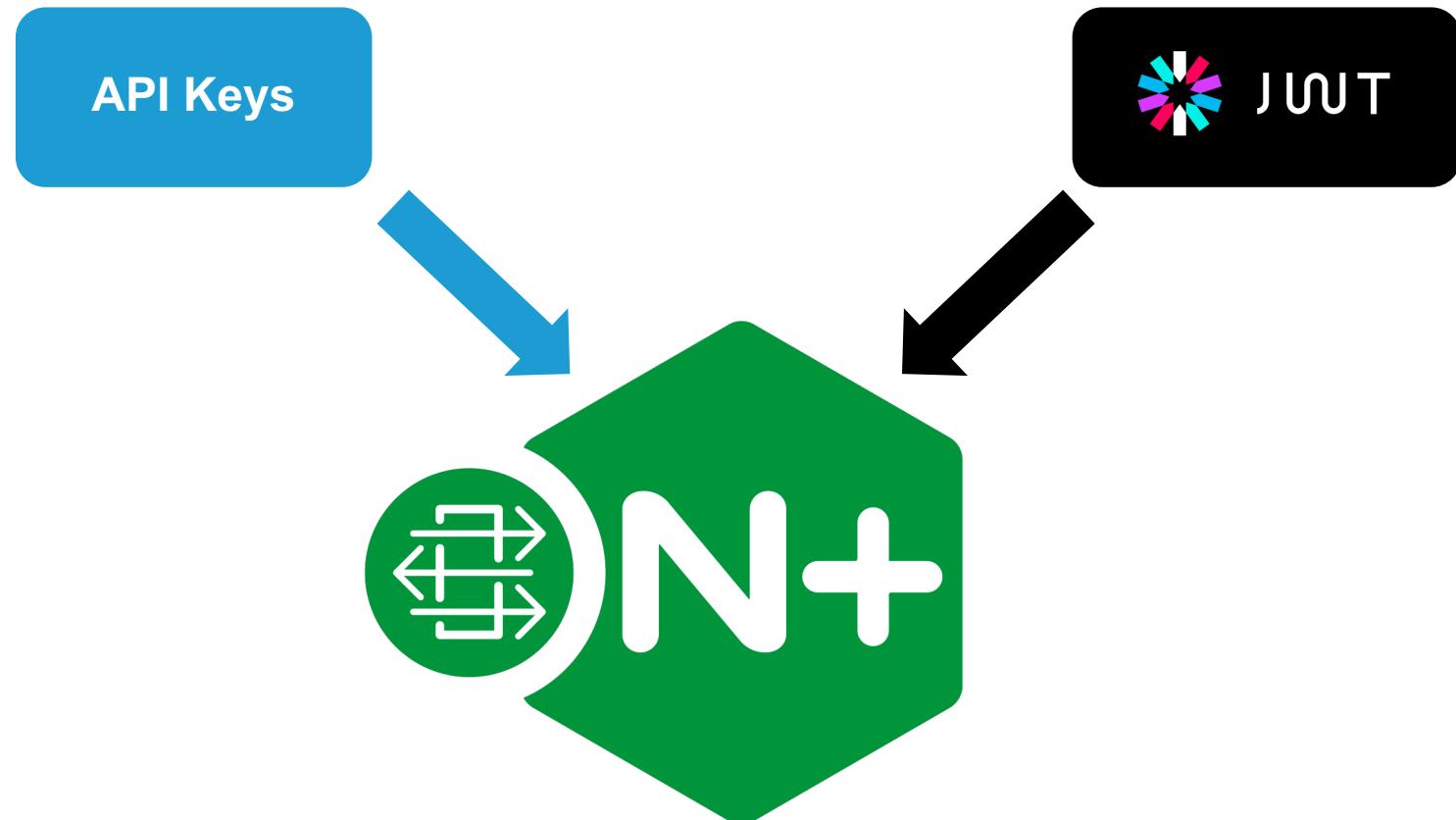
Platform flexibility



Distributed environments



NGINX (Plus) authentication options

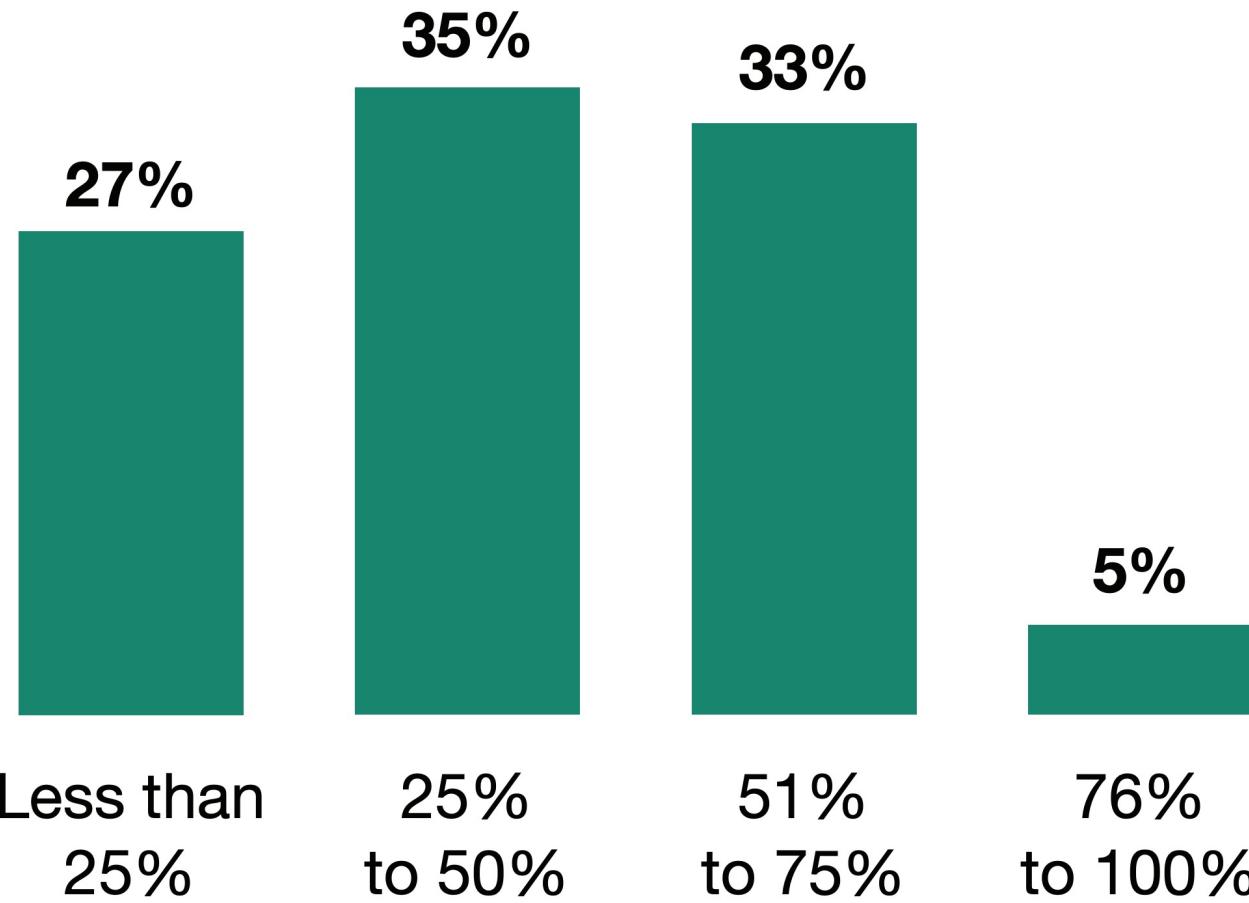


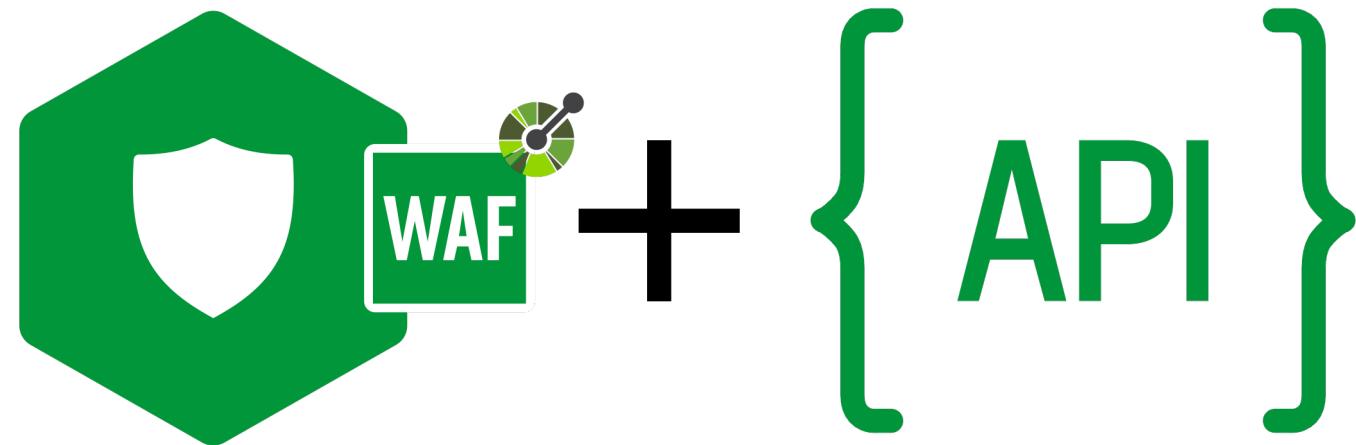
NGINX App Protect

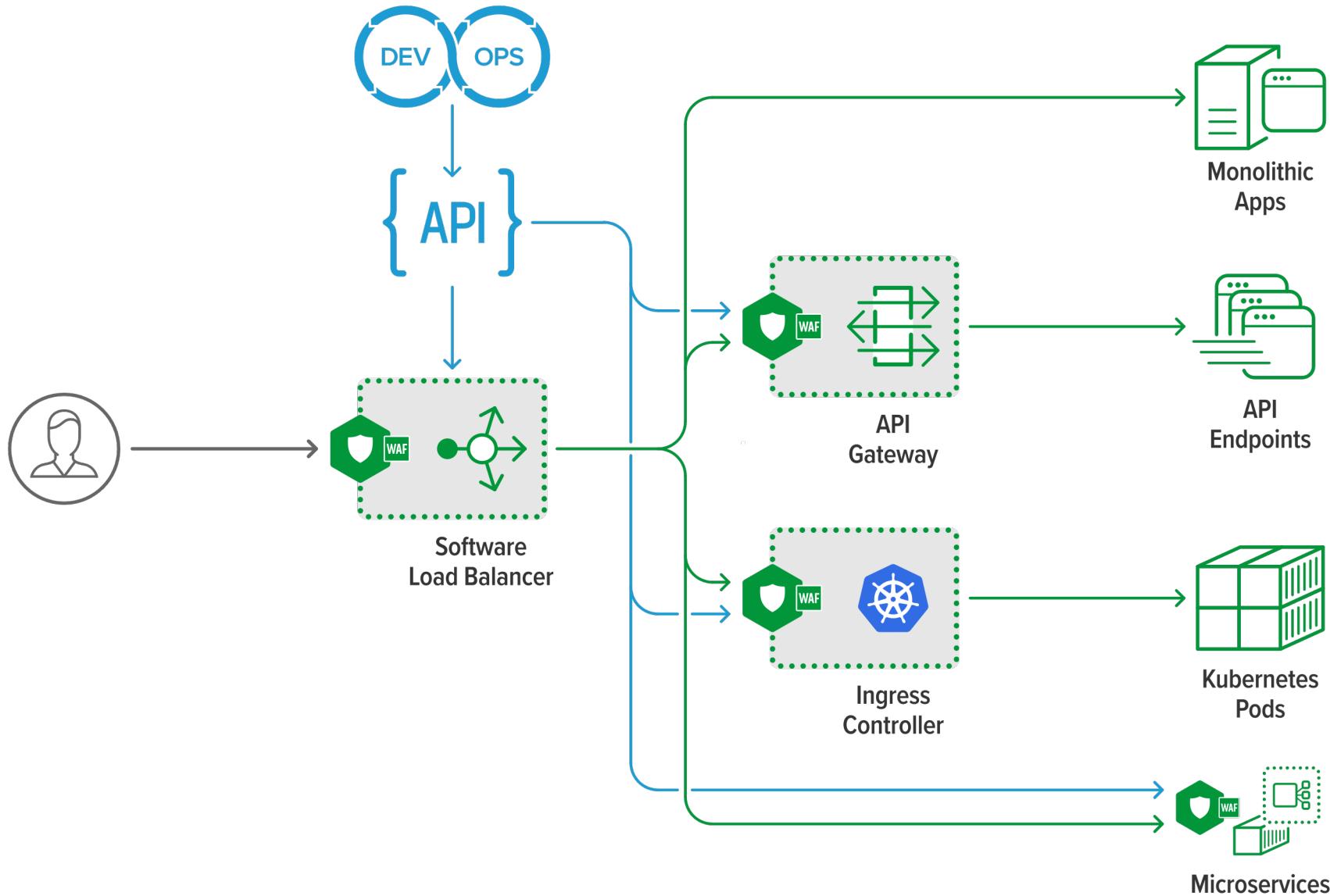
Native API security

Percentage of apps organizations expose via APIs

Forrester's state of application security 2021 report





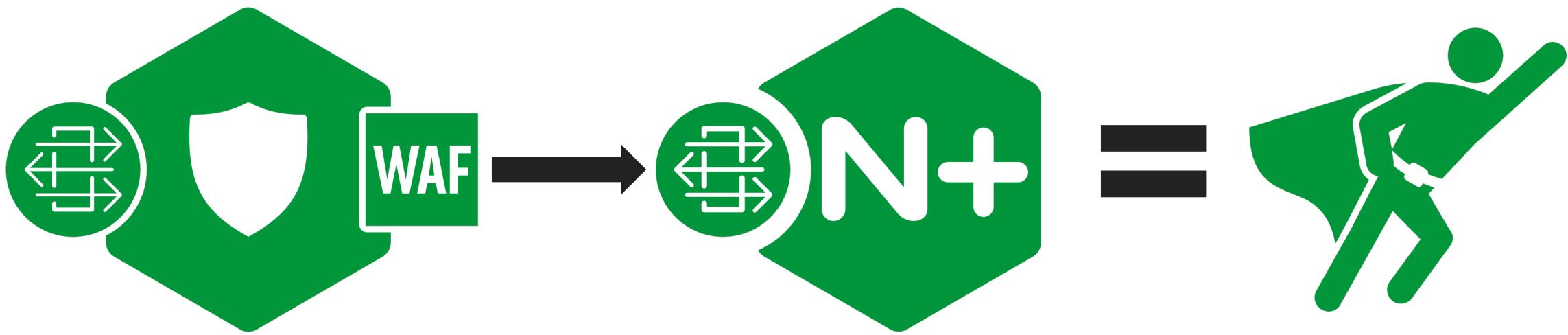


Demo time!



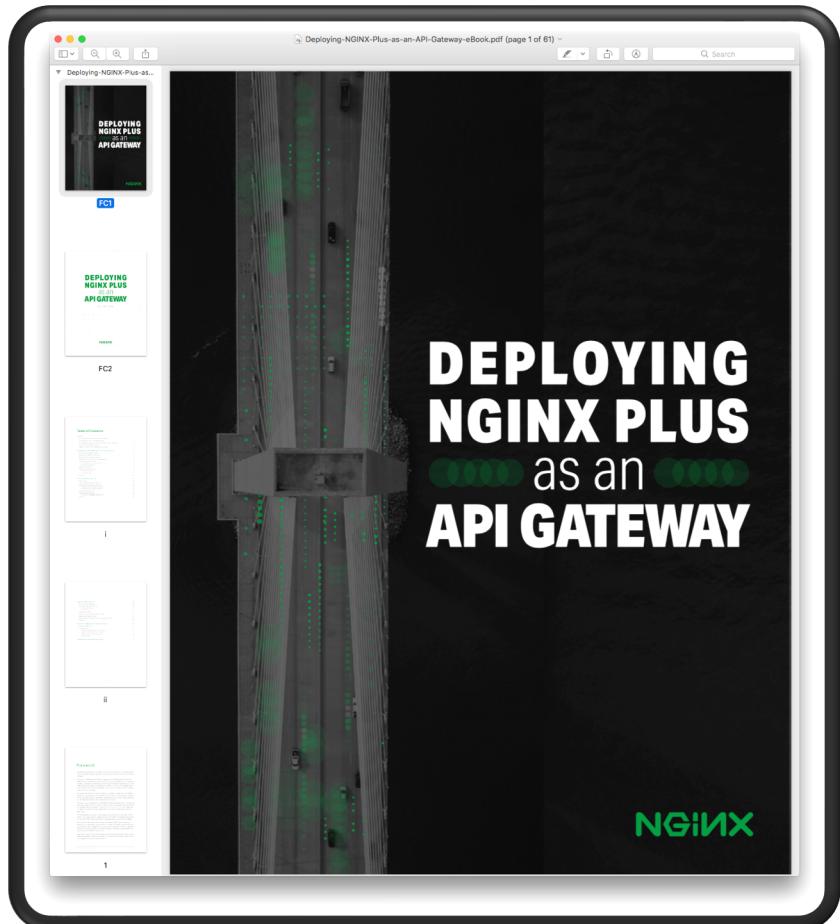
Demo available at <https://github.com/alessfg/nginx-api-gateway-demo>

In conclusion...



Resources

Find out more!



<https://www.nginx.com/resources/library/nginx-api-gateway-deployment> <https://www.nginx.com/blog/deploying-nginx-plus-as-an-api-gateway-part-1/>

BLOG TECH Liam Crilly of F5 January 20, 2021

Deploying NGINX as an API Gateway, Part 1

API gateway

TWITTER IN LINKEDIN Y FB

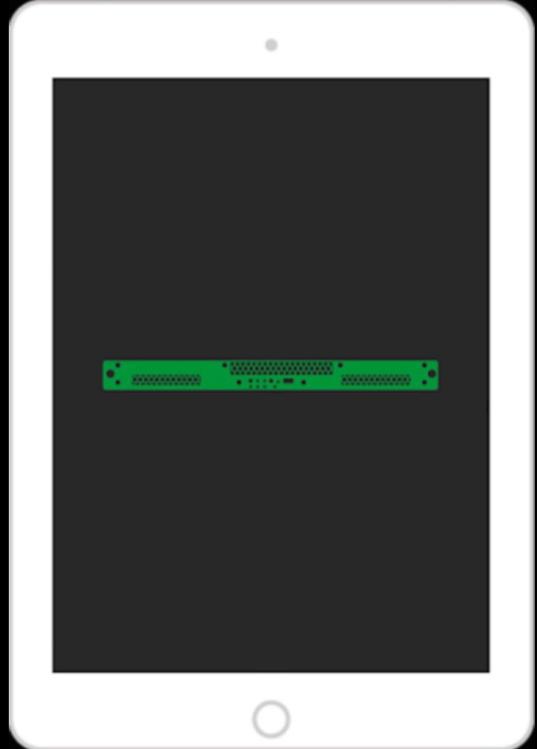
This is the first blog post in our series on deploying NGINX Open Source and NGINX Plus as an API gateway:

- This post provides detailed configuration instructions for several use cases. Originally published in 2018, it has been updated to reflect current best practice for API configuration, using nested `location` blocks to route requests, instead of rewrite rules.
- Part 2 extends those use cases and looks at a range of safeguards that can be applied to protect and secure backend API services in production.
- Part 3 explains how to deploy NGINX Open Source and NGINX Plus as an API gateway for gRPC services.

Note: Except as noted, all information in this post applies to both NGINX Open Source and NGINX Plus. For ease of reading, the rest of the blog refers simply to "NGINX".

Check out NGINX Plus and NGINX App Protect!

Deploy and secure your API gateway with NGINX's free trial -> <https://www.nginx.com/free-trial-request/>



Try NGINX Plus, NGINX App Protect, and NGINX App Protect Denial of Service

NGINX products give you much more than just support. NGINX Plus is the all-in-one software load balancer, content cache, web server, API gateway, and microservices proxy. NGINX App Protect provides modern application security using F5's market-leading WAF technology. NGINX App Protect Denial of Service provides protection from advanced, evasive app-level DoS attacks. Together, they scale and protect modern, distributed web and mobile applications.

Try them free for 30 days.

Thank you for attending!

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Q&A time!

