NGINX Controller®

API Management

Scale Your Digital Business with Faster, More Secure APIs

NGINX Controller is a robust API management solution that fully leverages the power of the lightweight, simple, and high-performance NGINX Plus data plane.

The Problem

APIs are crucial to an enterprise's digital transformation strategy. APIs foster internal collaboration among developers, provide an opportunity to generate revenues by building partnerships with third-party developers, and are foundational to application modernization initiatives that use microservices.

NGINX is the industry's most ubiquitous API gateway, handling API routing, security, and authentication.

Infrastructure & Operations and DevOps teams must grapple with many challenges as APIs gain wide adoption both internally and externally and the numbers of APIs and API gateways increase. APIs need to be managed in an efficient manner across their entire lifecycle and API gateways must be updated with the latest API policies. API management must not degrade the performance of the gateway itself, which is responsible for routing and mediating traffic.

The Solution

The NGINX Controller API Management Module combines the raw power and efficiency of NGINX Plus as an API gateway with new control-plane functionality. NGINX Controller empowers teams to define, publish, secure, monitor, and analyze APIs, while keeping developers in control of API design.

NGINX Controller eliminates the need for local databases or additional components that may introduce needless complexity, latency, and potential points of failure for NGINX Plus API gateways. API runtime traffic is isolated from API management traffic because the NGINX Plus API gateway (data plane) does not require constant connectivity to NGINX Controller (control plane). This maximizes performance by reducing the response time to serve an API call and minimizes the footprint and complexity of the gateway. This decoupled approach extends to the Developer Portal too – it can be hosted on a separate NGINX web server, improving its performance and availability and providing considerable flexibility.

Why NGINX Controller for API Management?

Deliver APIs in Real Time

A radically innovative architecture that decouples the control plane from the data plane makes the NGINX API management solution ideal for serving APIs in real time
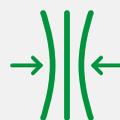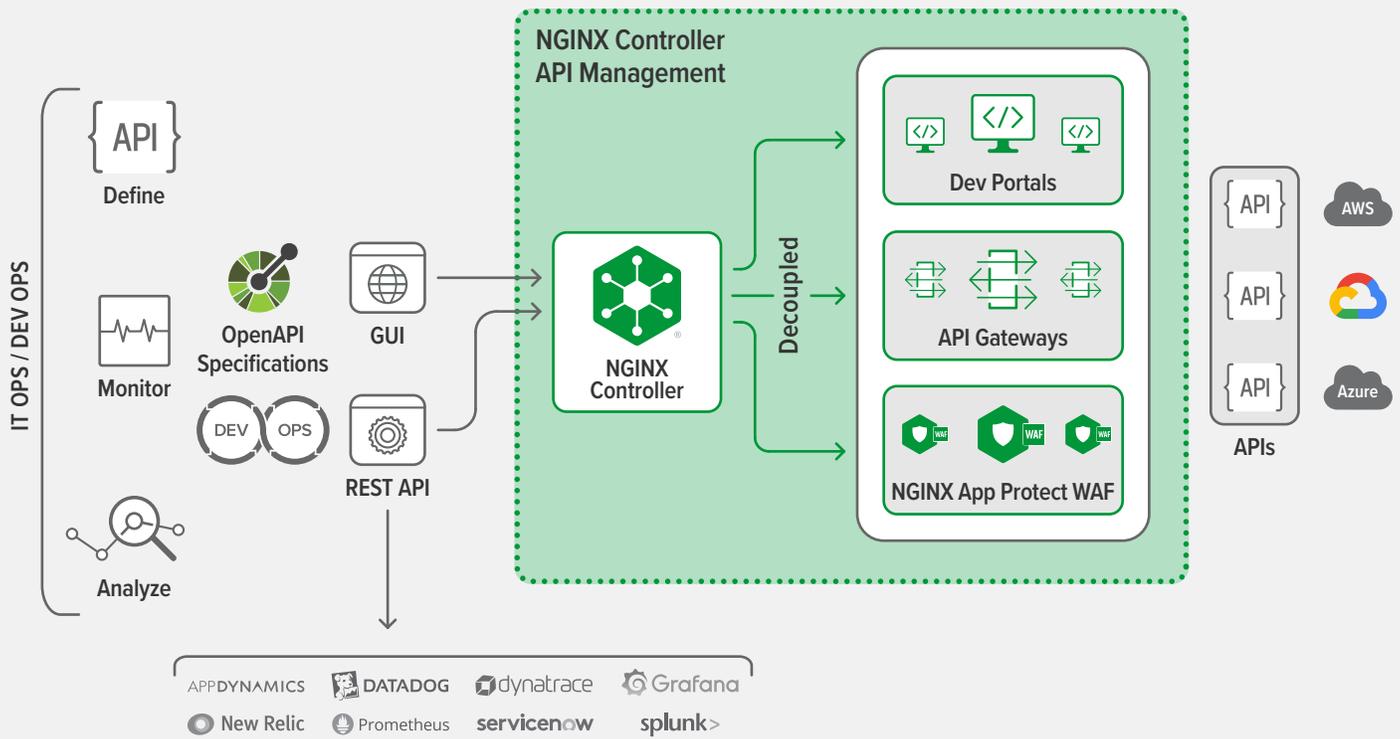
Flexible and Portable

Deploy API management on any environment – bare metal, VMs, containers, and public, private, and hybrid clouds

Scale Your Business

Integrate API management into your CI/CD pipelines, and automate definition and publication of your APIs and configuration of your gateways

NGINX is a part of F5

API Management Module Features

API Definition and Publication

Define APIs using an intuitive interface:

- Define base path and backend services
- Route APIs to appropriate backend services
- Manage versioning of APIs
- Import APIs that follow OpenAPI standard
- Create REST-to-SOAP proxies with JSON->XML transformation by importing WSDLs that describe SOAP APIs
- Publish APIs to one or more environments, such as production or staging
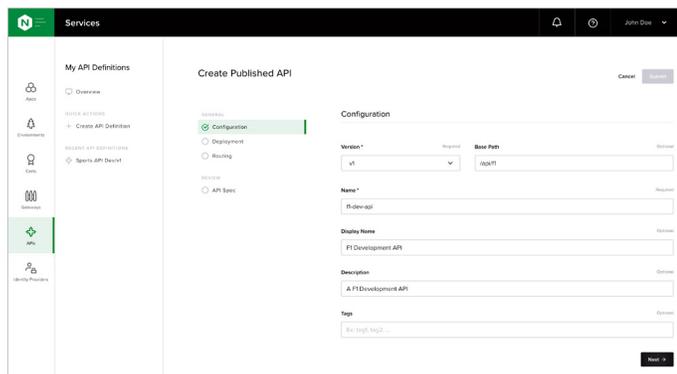
Accelerated API Release Velocity

Integrate API management into DevOps workflows and CI/CD pipelines using APIs:

- Define and publish APIs
- Configure API gateways
- Configure security policies for published APIs
- Deploy and run on containers
- Deploy API gateways inside Kubernetes clusters

```
{
    "metadata": {
        "name": "ticketprocessing.internal.acmefinancial.net",
        "tags": []
    },
    "desiredState": {
        "apiDefinitionVersionRef": {
            "ref": "/services/api-definitions/ticketprocessing.internal.acmefin
        },
        "gatewayRefs": [
            {
                "ref": "/services/environments/lending-prod/gateways/star.interna
            }
        ],
        "basePath": "/"
    }
}
```

API Management Module Features

Authentication and Authorization

- Validate JSON Web Tokens (JWTs)
- Create and manage API keys for consumers
- Import API keys from external systems
- Share with API consumers
- Apply policies to groups of API clients
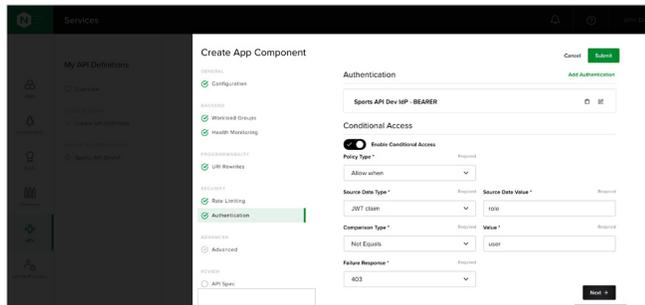

Advanced Security

Protect APIs with a modern WAF:

- Apply out-of-the-box protection against OWASP Top 10 and other vulnerabilities, based on F5's market-leading WAF technology
- Secure your APIs at runtime by deploying and managing WAF across a distributed environment colocated with the API gateway
- Accelerate shift-left movement and minimize security issues in production by integrating WAF into DevOps workflows
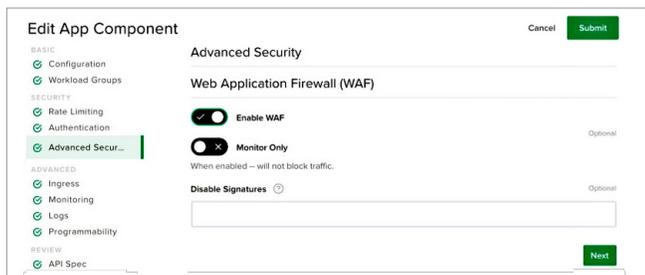
Rate Limiting

Mitigate DDoS attacks and protect your applications by setting rate limits:

- Specify the maximum request rate for each client, consumer, or resource
- Protect API endpoints and ensure SLAs for API consumers
- Define multiple rate-limiting policies
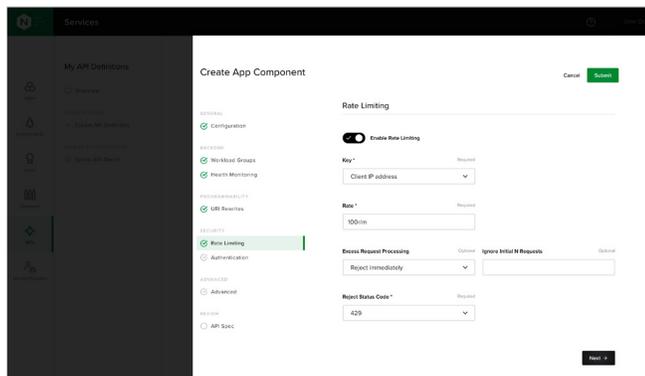
Real-Time Monitoring and Alerting

Get critical insights into API performance:

- Graphs of key metrics such as latency and response duration
- Gateway-specific metrics such as requests per second, active connections, and bandwidth usage
- Alerts on more than 100 metrics such as CPU usage, 4xx/5xx errors, and health check failures, based on predefined thresholds
- Easy integration with any monitoring tool of your choice using REST API
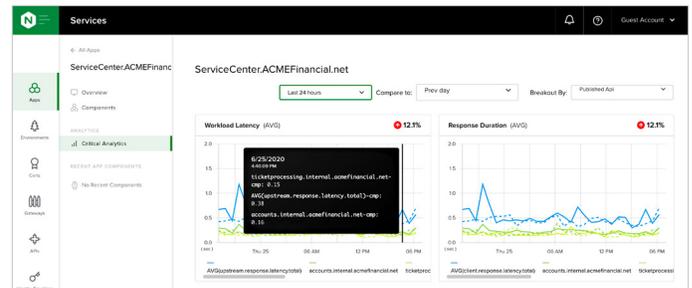
Developer Portal

The Developer Portal is deployed on its own NGINX web server so that it is decoupled and logically located separate from NGINX Controller for added performance and uptime.

- Gain flexibility to suit your operating environment by deploying the Developer Portal in a different environment from the API runtime/API gateways. For example, the portal can be deployed in AWS while API gateways operate in an on-prem environment.
- Deploy multiple portals (for example, one for external APIs and one for internal APIs) with differential access rights or branding based on your needs
- Quickly generate the following for efficient onboarding of developers who consume your APIs
  - Catalog of all published APIs
  - Documentation
  - Sample code
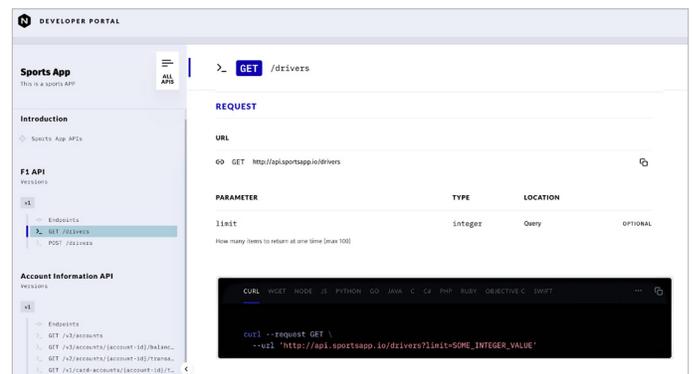
API Management Module Features

Dashboards

Monitor and troubleshoot API gateways quickly with:

- An overview dashboard that aggregates metrics across API gateways
- An Application Health Score that measures successful requests and timely responses
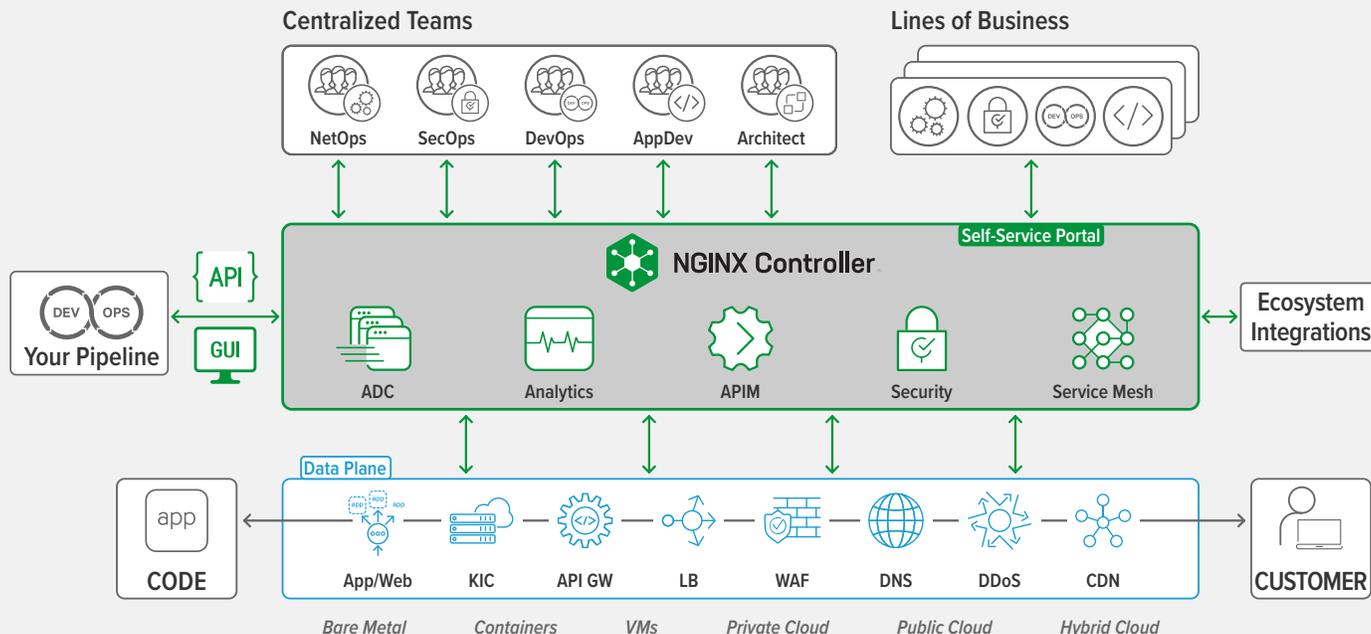- Customizable dashboards to monitor metrics specific to your environment
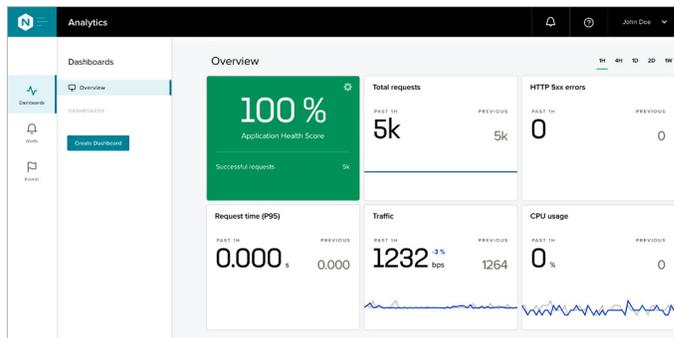
NGINX Controller

The First App-Centric, Multi-Cloud Application Platform for Modern App Teams

From NetOps to DevOps, modern app teams need a self-service, API-driven platform that integrates easily into CI/CD workflows to accelerate app deployment — whether your app has a hybrid or microservices architecture — and makes app lifecycle management easier.

Built to manage NGINX Plus instances, NGINX Controller is cloud-native, secure, and high-performance.

Ready to experience lightning-fast application delivery and API management? Request a free trial today.

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