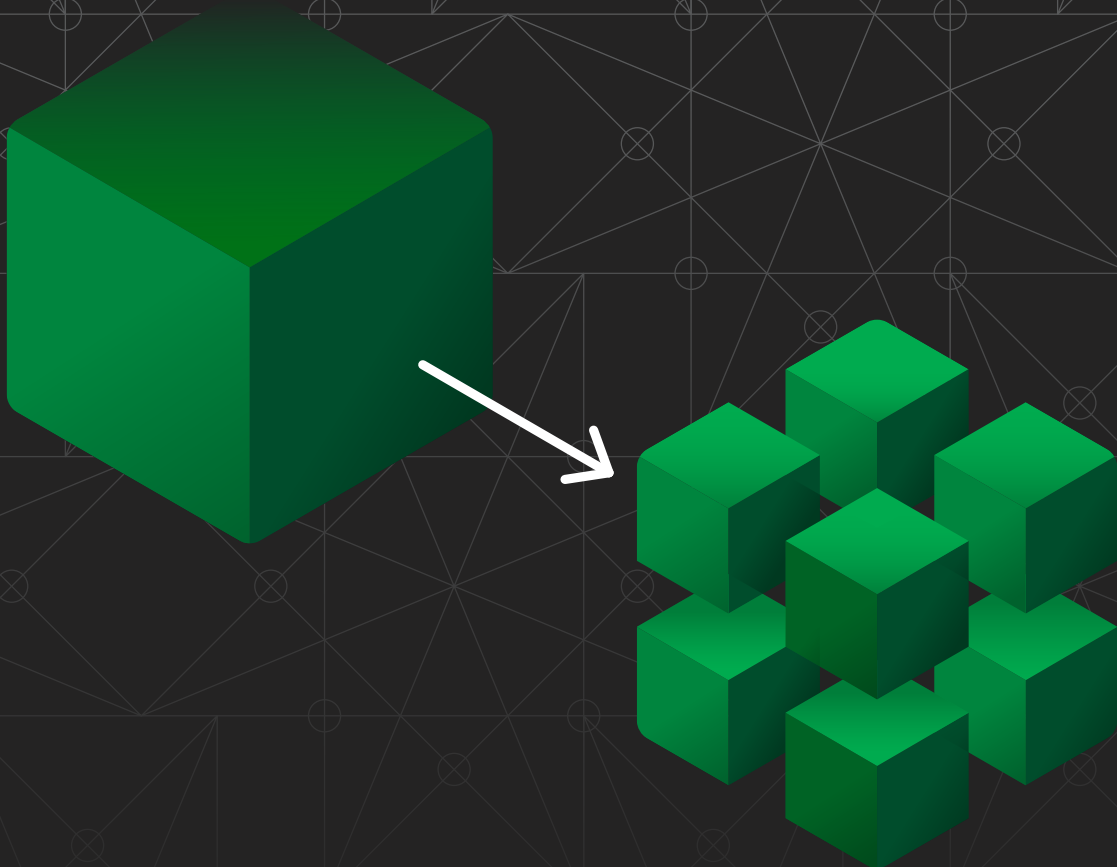


NGINX Application Platform

High Performance Application Delivery
for Microservices



NGINX

Application Platform

Simplify the journey to microservices.

Many organizations today would like to move to microservices but are held back by complex application infrastructures. They use a mix of open source software, proprietary solutions, and custom code that has become a nightmare for these companies to manage. These fragile application stacks ultimately limit the agility that businesses need to stay competitive in today's market.

The NGINX Application Platform helps reduce complexity by consolidating common functions down to far fewer components – in many cases, down to a single piece of software. Using the NGINX Application Platform our customers are able to reduce complexity in their application stack and begin migrating to a modern, microservices-based architecture.

The NGINX Application Platform is a modern, open source software-based tool set for delivering applications with performance, reliability, security, and scale. It includes NGINX Plus for load balancing and application delivery, NGINX WAF for security, and NGINX Unit to run the application code, all monitored and managed by NGINX Controller.



NGINX Controller

Centralized monitoring and management



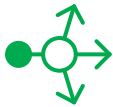
Analytics



Control



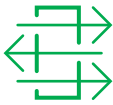
Policy



Load Balancer



Content Cache



API Gateway

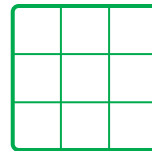


WAF

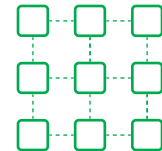


NGINX Plus

Application delivery



Monolith



Microservices



NGINX Unit

Web and application server



Cloud



Virtual Machine



Container



Bare Metal

Infrastructure – Multi-cloud versatility

NGINX Plus

The only all-in-one load balancer, content cache, and web server

Ask anyone in IT and they'll tell you complexity is the enemy. By combining multiple tools into one, NGINX Plus reduces complexity. With a simpler infrastructure to manage, application teams can achieve greater agility and feature velocity. Whether you're modernizing legacy apps or building new, microservices-based apps, NGINX Plus helps you reliably scale digital services.

Many organizations today are dependent on legacy hardware application delivery controllers (ADCs). Hardware ADCs are a roadblock to creating scalable applications. NGINX Plus can be used to replace hardware ADCs, to give you significant cost savings combined with the agility of open source software.

"The amount of traffic that NGINX Plus can handle is unreal – even beyond our needs."

– James Ridle,
IT Operations Manager
at Montana Interactive

Why NGINX Plus?



Cost savings – Save 80% over hardware ADCs while exceeding performance and functionality.



Flexibility – You can run NGINX Plus software in bare metal, virtual machines, container-based environments, and any cloud environment with no vendor lock-in.



Community – NGINX Plus is built on NGINX Open Source and backed by an enthusiastic community of over 400 million users, with thousands of community-contributed articles available to help you in your journey.

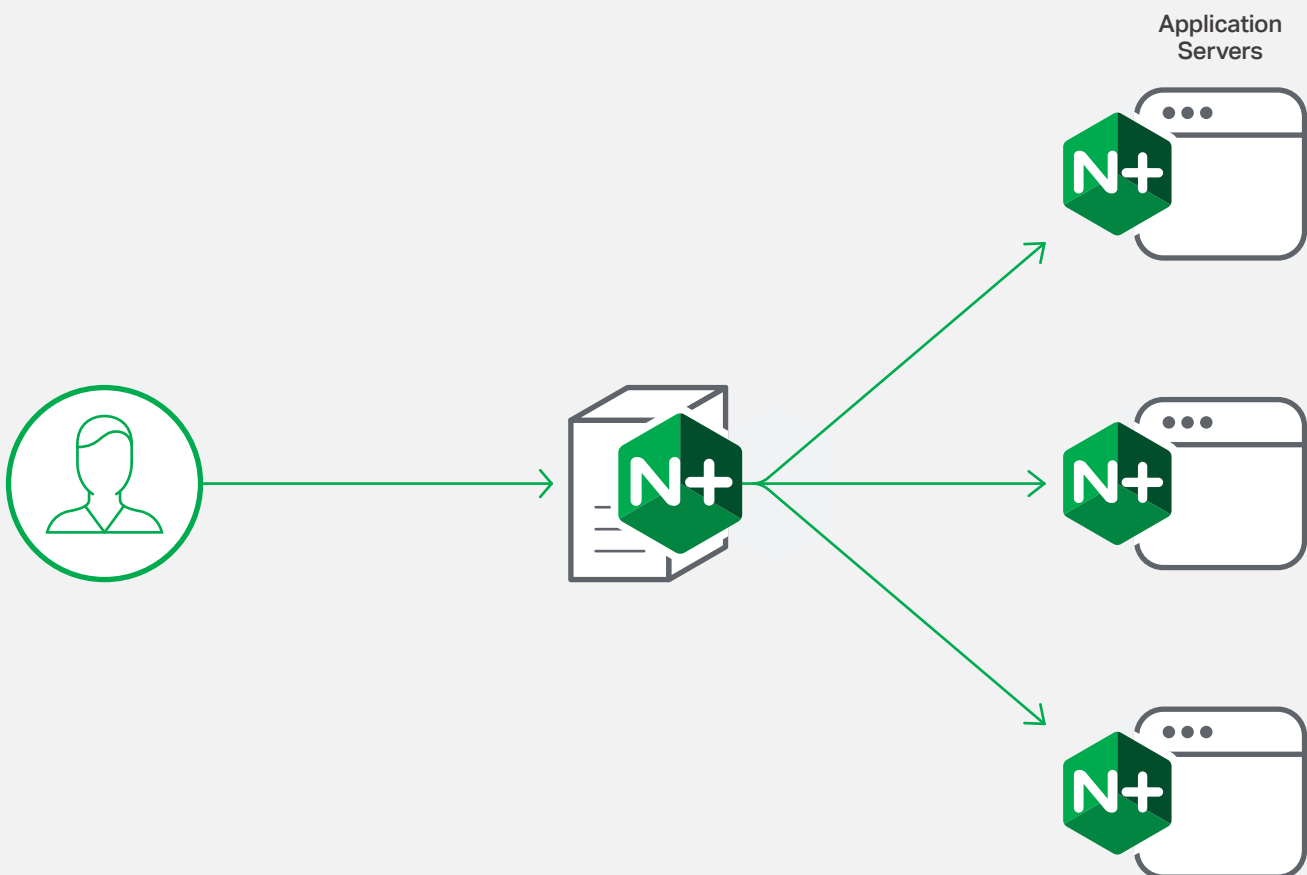
How NGINX Plus works

NGINX Plus installs on x86, ARM, and Power8 servers running a Unix-like system, such as Linux or FreeBSD. It's installed using standard package management tools (apt, yum). NGINX Plus typically runs one worker process per CPU core for maximum performance.

NGINX Plus functions as a reverse proxy, accepting and accepting TCP connections and making new TCP connections to upstream servers. As a web server it serves static content directly and reverse proxies to PHP-FPM, uwsgi, and other application servers. As a cache, NGINX Plus handles both static and dynamic content. In addition, NGINX Plus can be used to stream media.

NGINX Plus Features:

- HTTP/TCP/UDP load balancer
- Content cache
- Web server
- SSL/TLS offload with dual-stack RSA/ECC
- Content compression
- Rate limiting
- JWT authentication
- High availability
- Reverse proxy for HTTP, FastCGI, memcached, SCGI, and uwsgi
- 20+ dynamic modules
- OpenID Connect SSO



Cache, load balance, and serve static content with a single tool, NGINX Plus.



NGINX WAF module

Protect your applications

Even when you understand security, it is difficult to create secure applications given the pressures on today's companies. The NGINX Web Application Firewall (WAF module) protects applications against sophisticated Layer 7 attacks that might otherwise lead to loss of sensitive data, downtime, and reputation damage. The NGINX WAF module is based on the widely used ModSecurity open source software.

ModSecurity is one of the most trusted names in application security, protecting over a million

websites today. As open source software, ModSecurity is backed by a large, enthusiastic community of security experts. Community backing extends beyond ModSecurity itself to the OWASP Core Rule Set (CRS), which protects against the most common and devastating attacks.

Like ADCs, WAFs have typically been in the realm of hardware appliances, within the enterprise. And like ADCs, hardware WAFs suffer from the same shortcomings. They are costly and inflexible.

"Web applications – yours, mine, everyone's – are terribly insecure on average. We struggle to keep up with the security issues and need any help we can get to secure them."

– Ivan Ristić, creator of ModSecurity

Why NGINX WAF?



Cost savings – PCI compliance at a fraction of the cost of the hardware WAFs.



Battle tested – Used by more than a million websites, ModSecurity is the most trusted name in application security.



Agility – Respond quickly to emerging security threats with virtual patching.

How NGINX WAF module works

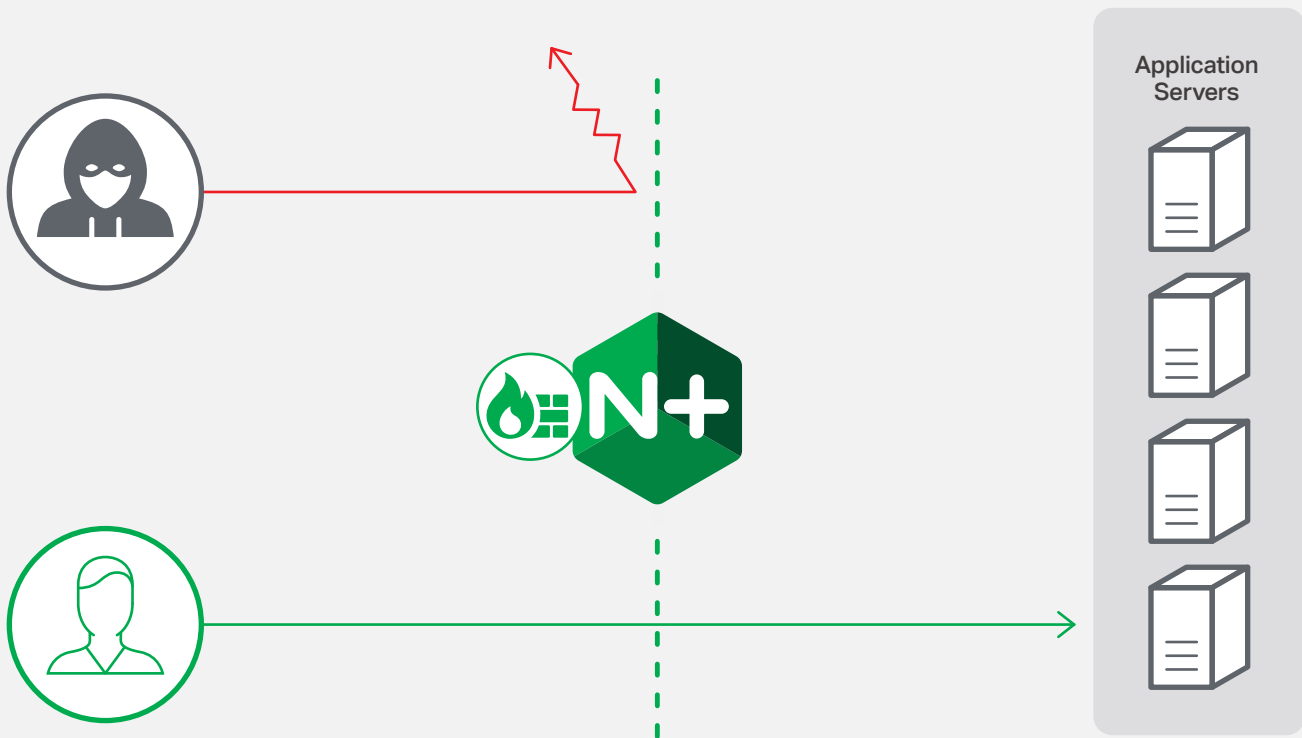
NGINX WAF is a dynamic module for NGINX Plus. It plugs into a running NGINX Plus instance. NGINX Plus still terminates connections and performs redirects and rate limiting as usual, but requests are sent to the NGINX WAF module before being forwarded to the backend server.

After doing initial processing, NGINX Plus passes the traffic to the NGINX WAF module, which inspects all parts of the request for malicious content or other anomalies. If the request is deemed malicious it can be blocked, logged, or both, depending on configuration.

If the request is determined to be acceptable, it is returned to NGINX Plus, which then satisfies the request.

The NGINX WAF module provides the following protections:

- **Layer 7 attack protection**
SQL injection (SQLi), cross-site scripting (XSS), Local File Inclusion (LFI), Cross-site request forgery (CSRF), Remote File Inclusion (RFI), and more.
- **IP reputation**
Block known bad IP addresses in real time using Project Honey Pot.
- **Scanner and bot detection**
The NGINX WAF module can detect and block most scanners in use today.
- **Virtual patching**
Respond to emerging threats in real time with a flexible PCRE-regex based rules language.



The NGINX WAF module protects against a broad range of Layer 7 attacks.



NGINX Unit

Dynamic web and application server

Most application servers we use in production environments today were written for static, monolithic architectures. Most have been retrofitted with sidecars and other add-ons for the dynamic functionality and consistent behavior needed in today's application environments. Unfortunately these add-ons increase complexity, decrease performance, and create a greater surface for failure.

NGINX Unit is a new dynamic web and application server built to meet the demands of both monolithic and distributed applications. NGINX Unit combines the functions of a web and application server into

a single binary. NGINX Unit is dynamic by design and configured via a RESTful JSON API. All configuration changes are handled in memory, so there are no process reloads, no service disruptions, and no downtime.

Many organizations today have applications written in multiple languages. With NGINX Unit you can run multiple languages on the same server, enabling you to consolidate application servers and reduce complexity. Go, Perl, PHP, Python, and Ruby are supported, with more language support to come.

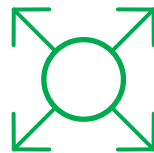
"Modern web applications are more complex than before. I see the lack of a simple and flexible base that is easy to use and reduces the complexity of modern web stacks. I created NGINX Unit to be this base."

– Igor Sysoev, creator of NGINX and Unit

Why NGINX Unit?



Reduce complexity – No need to tangle with multiple application servers and software stacks. Run your apps written in Go, Perl, PHP, Python, and Ruby using the same consistent and powerful application server.



Dynamic by design – NGINX Unit was created to adapt in real time to the demands of distributed applications, with a RESTful JSON API, and immediate in-memory changes without process reloads or service disruptions.



Deploy with confidence – NGINX Unit is developed by the team behind NGINX, the most reliable and trusted name in application delivery.

How NGINX Unit works

NGINX Unit is software installed on a Unix-like system, such as Linux or FreeBSD. NGINX Unit creates a group of separate processes on one system. For security purposes only the *Main process* is run as *root*. Client connections, application processes, and code are run in separate isolated processes with limited rights.

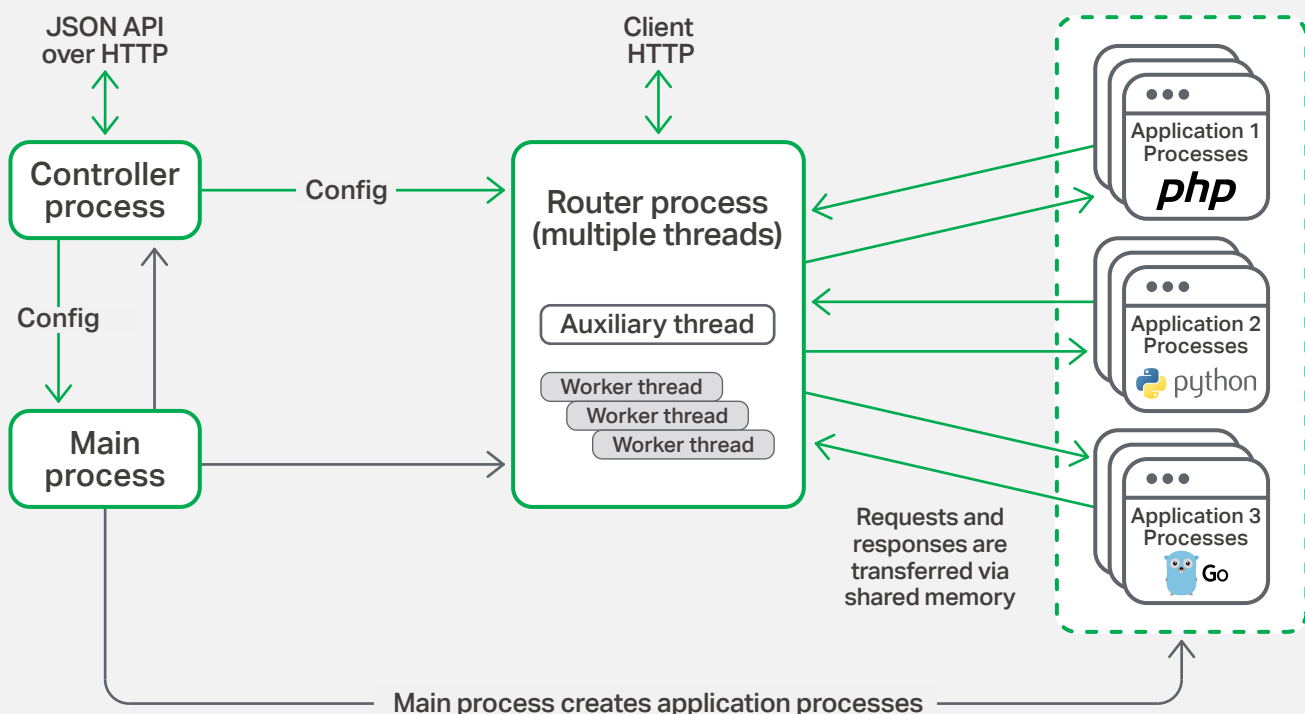
The *Controller process* is responsible for configuration. NGINX Unit is dynamically configured using a RESTful JSON API. You can upload the whole configuration at once, or just a part of it. NGINX Unit does not reload the whole configuration for every change, instead performing relevant changes directly in memory and reloading only the necessary parts. NGINX Unit configuration can be updated as frequently as needed without worrying about taking up additional system resources.

Supported languages:

- Go
- Perl
- PHP
- Python
- Ruby

The *Router process* interacts with clients. It accepts client requests and passes them to the application processes. It then gets responses back from the applications, and forwards them to the clients. Each worker thread in the Router process can simultaneously handle thousands of connections.

The *Application processes* run the application code. New application processes are created on demand by the Main process.





NGINX Controller

Centralized monitoring and management for NGINX Plus

Enterprises managing large production deployments need a centralized point of control and visibility. NGINX Controller helps the most demanding enterprises scale by providing a centralized monitoring and management platform for NGINX Plus. NGINX Controller makes managing large NGINX Plus clusters easy.

With NGINX Controller, you can manage hundreds of NGINX Plus servers from a single location. Using an intuitive graphical user interface you can create new instances of NGINX Plus and centrally configure features like load balancing, URL routing, and

SSL termination. Controller has rich monitoring capabilities to help you monitor application health and performance.

NGINX Controller helps enterprises move beyond the manual processes that stifle innovation. With NGINX Controller, IT provisions virtual load balancers for application teams, and then allows them to manage the load balancers themselves. This self-service capability enables application teams to adopt agile development practices, while freeing IT to focus on maintaining a stable infrastructure, without disruptions.

“Our vision is for NGINX Controller to be the intelligent brain within the infrastructure, absorbing information and making decisions in real time without human intervention.”

– Gus Robertson, CEO of NGINX, Inc.

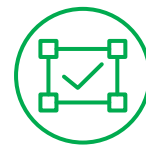
NGINX Controller gives businesses the following benefits:



Ease of use – Easily manage and monitor large NGINX Plus clusters from a single location.



Agility – Give application teams self-service capabilities to deploy new applications faster.



Compliance – Gain granular control over every process with role-based access control – putting the right tools in the right hands.

How NGINX Controller works

NGINX Controller works by way of a small agent that is installed on NGINX Plus servers. Once installed and registered, the target server will appear in the NGINX Controller inventory on the left side panel of the UI and is ready to have a virtual load balancer configuration assigned to it.

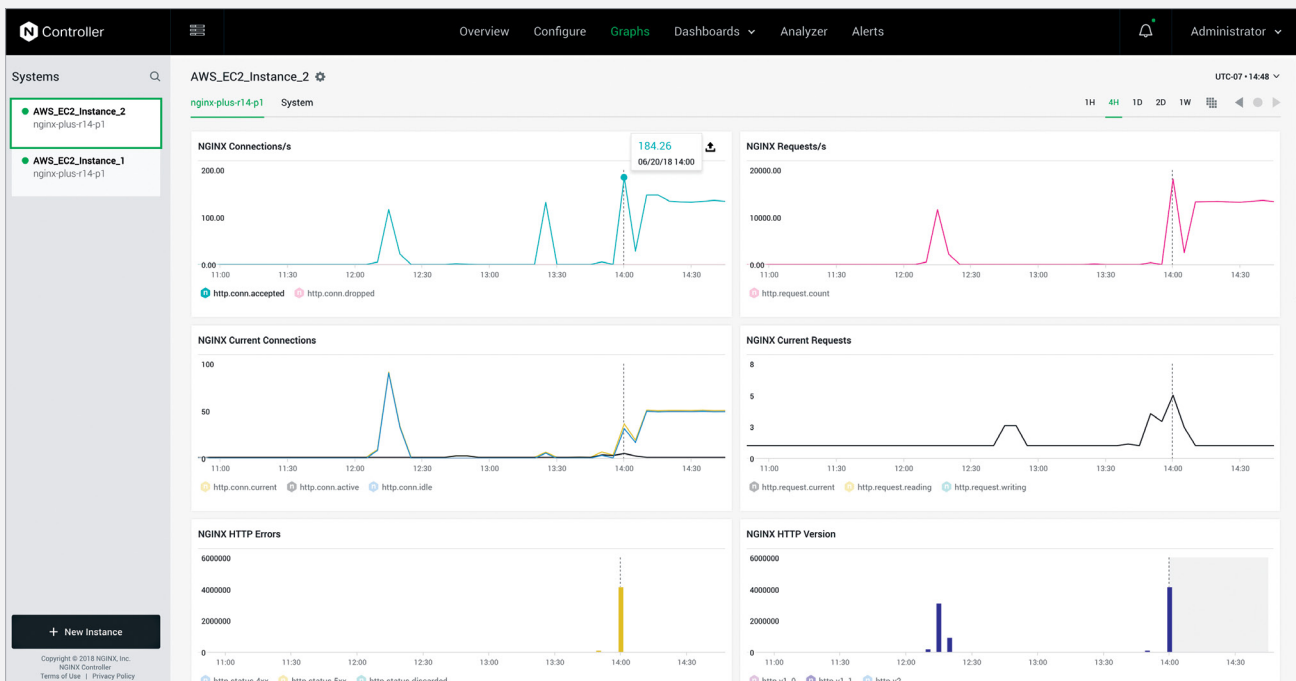
The middle panel of the NGINX Controller UI is where you create instance groups, virtual load balancers, routes, and backend pools of micro-services. This is the heart of your network; it's where all of the data flows.

Once the configuration has been defined, you assign it to a server in the inventory. To do this, you simply

Configurable with NGINX Controller

- Virtual servers
- Pools
- SSL/TLS offload
- Let's Encrypt integration
- HTTP/2
- Request routing
- Load-balancing algorithm

drag and drop the desired server to the policy you want to deploy on it. You can drop in multiple servers for heavily traffic applications and NGINX Controller ensures the configuration is in sync.



NGINX Controller provides a UI to centrally manage and monitor NGINX Plus.

For more information, visit nginx.com or
send us an email at nginx-inquiries@nginx.com

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