

Bridge traditional applications and microservices with NGINX Plus

“Once your application has become a large, complex monolith, your development organization is probably in a world of pain.”

Chris Richardson
Microservices From Design
To Deployment¹

Overview

The world economy is becoming increasingly digitized, and what success looks like in that digital world is changing significantly.

At the heart of this digital transformation is the migration from traditional, monolithic services to microservices that break an application down into its core functions. Each function (called a service) can be built and deployed independently, meaning individual services can function (and fail) without negatively affecting the others.

Shifting to microservices makes continuous integration and delivery (CI/CD) more achievable, which is why the majority of organizations are already migrating to microservices,¹ most new workloads are deployed in containers, and most internet traffic is made up of API calls.

Undertaking transformation

Using containers can be a complex undertaking. You have objectives to achieve, challenges to overcome, and an infinite number of tools available to integrate into your environments. It can be overwhelming.

To be sure of the best possible outcomes in a modern environment, seeking partners with an established reputation will always be favorable. While Kubernetes is the industry-standard tool for innovation and transformation, companies seeking to transform solely through containerization may face increased risk, complexity, security, and compliance challenges.

At the same time, while you are building this new modern application environment, it is likely you still have traditional applications that need to communicate with your modern ones. You need world-class tools not only for traditional and modern applications, but tools that help bridge the gap between the two.

With many organizations looking to stay competitive by transforming existing business models,² there is no better time for you to tap into a market focused on continuous innovation and delivering at speed.

That is why, together, Red Hat® Enterprise Linux®, Red Hat OpenShift®, Red Hat Ansible® Automation Platform, and NGINX Plus form the backbone of modern, agile applications through security-focused, scalable, and supported application delivery.

In this detail we will explore how NGINX Plus and Red Hat offer an integrated solution that helps you build applications on a reliable foundation, for resilience and performance without impacting flexibility.

¹ [“Microservices From Design To Deployment.”](#) Chris Richardson, NGINX, accessed May 6 2022..

² [“2022 Global Tech Outlook.”](#) Red Hat, Dec. 2021.

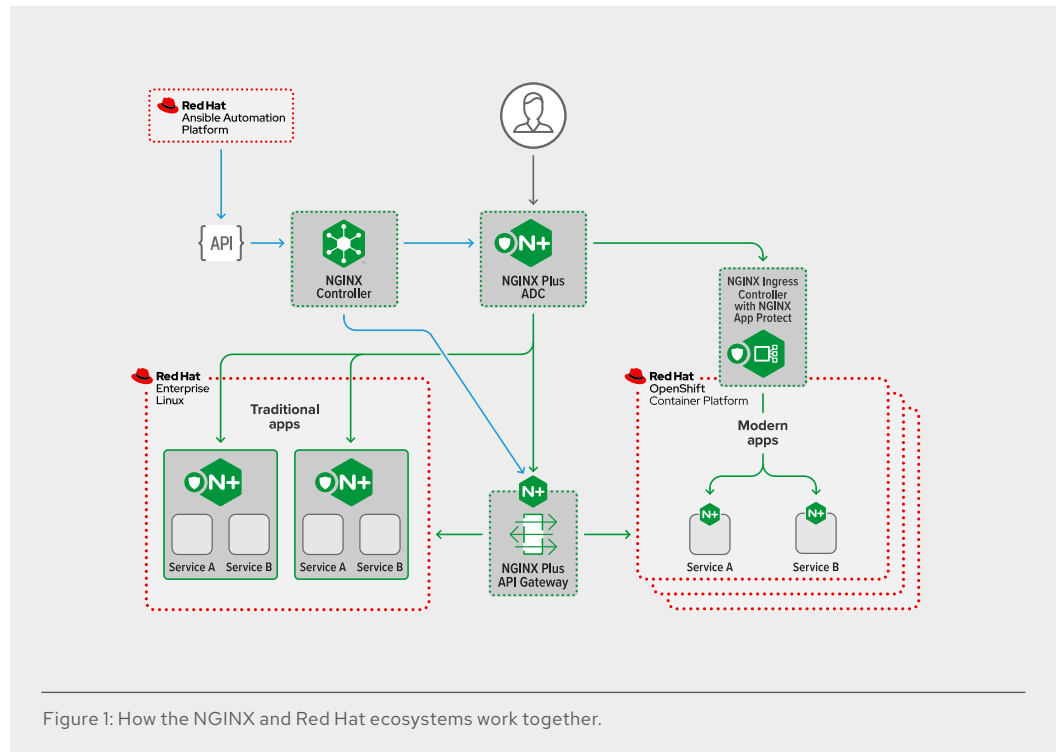


Figure 1: How the NGINX and Red Hat ecosystems work together.

Why NGINX Plus?

NGINX Plus adds enterprise-grade features on top of industry standard NGINX open source.

NGINX Plus provides scalable and reliable high availability along with monitoring to support debugging and diagnosing complex application architectures. Active health checks proactively poll upstream server status to get ahead of issues, and the integrated live activity monitoring dashboard provides a view of the application environment. The NGINX Plus API integrates with your existing tools, optimizing resources, and reducing tool sprawl.

NGINX Plus also helps you integrate high-level interoperability with Red Hat Enterprise Linux, Red Hat OpenShift, and Red Hat Ansible Automation Platform, as seen in the diagram above.

- ▶ **High availability.** NGINX Plus can be configured into an active-passive or active-active high-availability (HA) cluster to ensure application availability. In an active-passive HA cluster, there are two NGINX Plus servers: a primary that actively processes traffic, and a backup that monitors the health of the primary and takes over as primary automatically if the current primary fails.
- ▶ **Live activity monitoring.** NGINX Plus includes a real-time activity monitoring interface that provides key load and performance metrics. Using a simple RESTful JSON interface, you can connect these stats to live dashboards and third-party monitoring tools. This means that if you suspect a distributed denial-of-service (DDoS) attack, have users reporting errors from your website, or many other scenarios, there is data available to help fix the problem.

- ▶ **Dynamic modules.** NGINX Plus is a powerful platform for delivering high-performance web applications and is the world leader, powering more than 31% of web traffic³. Part of the strength of the application delivery platform comes from the large community of developers contributing new features and functionality through the open source base. New features developed by the community are available as modules that can be dynamically plugged into a running NGINX Plus instance, meaning less downtime.
- ▶ **NGINX App Protect.** NGINX App Protect WAF leverages the power of F5 security controls to protect apps and APIs against the latest, most advanced attacks and data exfiltration methods. What makes NGINX App Protect WAF unique is its flexible software form factor, its integration with the NGINX platform, and its ability to help teams “shift security left” into the development process—meaning applications, APIs, and microservices get rapid, powerful threat defense that is as agile as the DevOps teams building them.

Using NGINX Plus with Red Hat Enterprise Linux

Red Hat has led enterprise Linux for years with Red Hat Enterprise Linux.⁴ The production-ready, packaged, and supported version of Linux makes it a compelling choice for organizations looking for simplicity and peace of mind. It can be deployed anywhere, including on a Red Hat OpenShift cluster while also forming the Linux foundation of Red Hat’s Kubernetes platform.

That is why NGINX Plus is interoperable with Red Hat Enterprise Linux.

And because NGINX recognizes Red Hat Enterprise Linux as a premium platform, the NGINX team works closely with Red Hat to ensure NGINX Plus updates come on the same day as new Red Hat Enterprise Linux releases, allowing you to download and install updates natively within Red Hat Enterprise Linux.

Why the NGINX Controller?

Modern application teams need a self-service, API-driven platform that integrates easily into CI/CD workflows to accelerate application deployment and make application life cycle management easier. Built to manage NGINX Plus instances, NGINX Controller is cloud-native and high-performance.

- ▶ **Accelerate your time to market.** Declarative APIs enable automation and orchestration of applications and APIs published through NGINX Controller.
- ▶ **Understand and manage your app portfolio.** NGINX Controller is cloud-agnostic and includes a set of enterprise-grade services that give a clear line of sight to applications in development, testing, or production.
- ▶ **Manage and deliver your API portfolio.** The controller lets you take advantage of the full API life cycle through a management solution that is automation-friendly, is optimized for microservices and external APIs, and supports multicloud and hybrid cloud environments.

Why use NGINX Controller with Ansible Automation Platform?

Just as Ansible Automation Platform helps manage application workflows, the NGINX Controller helps manage NGINX Plus instances in multiple environments, including Red Hat Enterprise Linux.

The Ansible Collection for NGINX Controller enables the addition of the NGINX Controller into regular workflows so developers can automate the tasks, including ephemeral API token generation, managing certificate life cycles, and configuration of Controller objects (gateways, applications, and components).

³ [“January 2022 Web Server Survey.” Netcraft, 17 January 2022.](#)

⁴ [“Market Share: All Software Markets, Worldwide, 2020.” Gartner Research, 14 April 2021.](#)

Why the NGINX Ingress Controller?

NGINX Ingress Controller is a widely used technology and is synonymous with the process of getting high-performing, scalable, and secure modern applications in production.

NGINX Ingress Controller provides a robust feature set to secure, strengthen, and scale your containerized applications, including:

- ▶ **Advanced app-centric configuration.** Role-based access control (RBAC) and self-service to set up security guardrails (not gates), so teams can manage their applications with greater security and agility.
- ▶ **Visibility and performance monitoring.** The Ingress Controller helps you pinpoint undesirable behaviors and performance bottlenecks to simplify troubleshooting and make fixes faster.
- ▶ **NGINX Ingress resources.** The resources offer a native, type-safe, and indented configuration style to simplify capabilities such as circuit breaking, sophisticated routing, header manipulation, mutual Transport Layer Security (mTLS) authentication, and web application firewall (WAF).

Why use NGINX Ingress Controller with Red Hat OpenShift?

With the NGINX Ingress Operator for OpenShift, you can use the NGINX Plus version of the Ingress Controller alongside the default Red Hat OpenShift router. This gives you much more than just traffic management for your containers.

This is a purpose-built version of the NGINX Open Source Ingress controller with enterprise-grade features that enable far more than just traffic management for your containers. Developers can improve testing so suboptimal code does not get to production, and immediately start getting better data about application functionality and performance.

What does it all mean together?

Many organizations are working their way from traditional applications toward modern applications composed of microservices. The pairing of Red Hat with NGINX Plus services means you have feature-rich tools for both types of applications with services that work with each other as you transition.

What's next?

[Learn more about how Red Hat and NGINX Plus work together.](#)



About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. [A trusted adviser to the Fortune 500](#), Red Hat provides [award-winning](#) support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

About F5

Powering and Protecting Adaptive Applications F5 enables organizations to bring extraordinary experiences to life.

A long-standing belief that applications are the most valuable assets of any organization in the digital age has been the foundation of F5's strategy to become a leader in multi-cloud application security and delivery technology. F5 and NGINX power more than half of the world's applications across all types of environments. When this expertise is combined with Shape's AI-centric insight in mitigating one billion application attacks per day and Volterra's universal edge-as-a-service platform with unlimited scalability, the result is a company that enables our customers to secure and deliver extraordinary digital experiences.

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