F5 Container Ingress Services

WHAT'S INSIDE

Dynamic Application Services Integration for Containerized Environments

More organizations are adopting containerized environments to develop and package applications. These organizations also use management and orchestration frameworks to coordinate provisioning and automation of containers. To meet user demands and reduce operational expenses, developers must be able to easily configure application services in containerized environments. According to a CNCF Survey Report, the top three challenges for containers noted by respondents are: complexity (41%), cultural changes with development teams (41%), and security (32%).

F5® Container Ingress Services (CIS) is a container integration open-source solution that helps developers and system teams manage Ingress HTTP routing, load-balancing, and application services in container and Platform as a Service (PaaS) deployments. Container Ingress Services integrates with native container environments, like Kubernetes and PaaS, as well as container orchestration and management systems, such as RedHat OpenShift. It also offers integrated automation of application performance, routing, and security services during development for a faster time to market. Container Ingress Services provides self-service selection across the network with F5 BIG-IP® solutions. BIG-IP provides a rich set of network and app statistics that you can export as a data stream to visibility and observability solutions for tracing and root cause analysis.

KEY BENEFITS

Dynamic application services for PaaS and containers
Container Ingress Services integrates with container environments such as Kubernetes and PaaS container systems such as RedHat OpenShift for managing container application services.

Self-service selection and automated event discovery
Container Ingress Services enables self-service Ingress HTTP routing and app services selection. It subscribes to events and automatically configures performance, routing, and security services on BIG-IP. In addition, it enables greater flexibility and usability with pre-existing policies and profiles for OpenShift Routes and annotations to rewrite target URLs for Kubernetes Ingress.

Scalability and security with app services insertion
Integrate with the BIG-IP platform to scale apps for availability and enable app services insertion. In addition, integrate with the BIG-IP system and NGINX for Ingress load balancing and app protection services.

Faster deployment and end-to-end visibility
Speed deployments with predefined BIG-IP templates and support for the Application Services 3 Extension. Gain visibility, observability, and analytics via data stream export to third-party solutions for fast resolution of anomalies and on-demand statistics.

CONTAINERIZED ENVIRONMENTS OFFER AGILITY

Developers and systems teams are turning to container frameworks for greater agility and flexibility, while using agile methodology to code apps at a faster pace. Architects need to deliver a better user experience and are looking for efficient deployment and code fixes. Systems teams, app developers, and network operations want more agility and lower costs and need container services solutions to deliver flexible deployments and reduce the amount of resources used.

DYNAMIC APPLICATION SERVICES FOR PaaS AND CONTAINERS

Container Ingress Services allows containerized environments to leverage the BIG-IP platform to enable Ingress control services—including app routing, URI routing, and API versioning—in PaaS frameworks, such as RedHat OpenShift and container environments, such as Kubernetes. Container Ingress Services integrates the BIG-IP platform with the container management and orchestration system control plane. Systems teams, app developers, and network operations now have automated Ingress load balancing integrated into the orchestration environment.

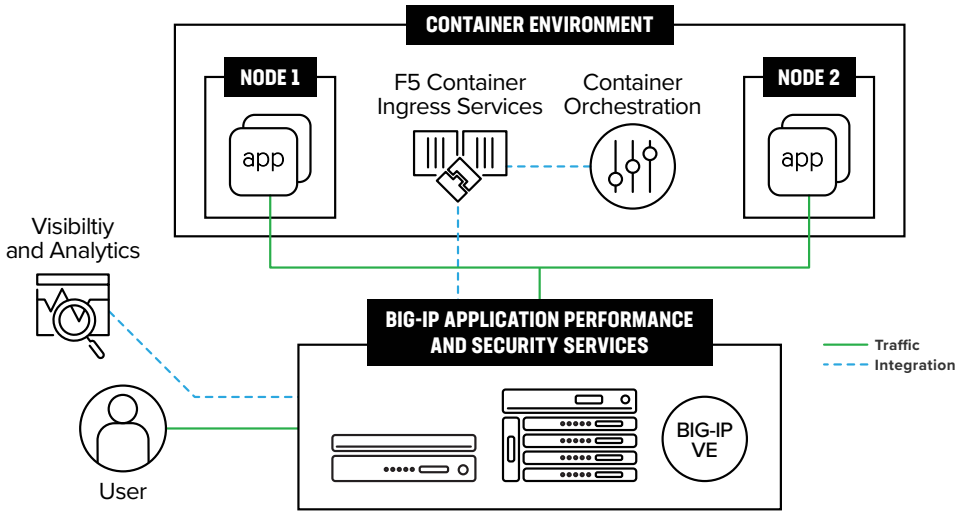

Figure 1: F5 Container Ingress Services deploys in container environments, enables self-service selection in orchestration, and subscribes to events to create, scale, and remove app services. You can also export your data streams for more in-depth visibility, observability, and analytics.

F5 CONTAINER INGRESS SERVICES FEATURES

- Runs in Kubernetes or Red Hat OpenShift.
- Subscribes to PaaS and container events to create, scale, and remove app services.
- Enables Ingress HTTP and URI routing for application services selection along with mapping rules and health monitoring.
- Simplifies deployment and policy management with predefined templates.
- Dynamically configures and manages the virtual server, pool members, health monitoring, Ingress load balancing, and other app services on the BIG-IP platform.
- Enables Blue/Green and A/B traffic management for multiple app versions.
- Attach pre-existing policies and profiles for OpenShift Routes.
- Provide BIG-IP Custom resources to simplify Ingress services consumption.
- Showcases Helm chart consumption, simplifying Kubernetes application deployments and upgrades.
- Exports data-stream metrics to third-party solutions for on-demand analytics.
- Unify DevOps-driven app requirements and enterprise-grade services for modern container apps with F5 IngressLink.

Container Ingress Services open source software is available at no charge as a downloadable container at DockerHub. Container Ingress Services is also available for download on GitHub.

SELF-SERVICE SELECTION AND AUTOMATED EVENT DISCOVERY

Scale your container architectures to meet application demands. Container Ingress Services allows you to deploy self-service Ingress control for system and app development teams within PaaS and container environments. Your DevOps process teams can subscribe to events to create, scale, and remove application services. For instance, teams can be notified of an event; tag their app with F5 performance, routing, and security services within the GUI or API; and add an additional label to their app for services insertion.

Container Ingress Services enables Blue/Green deployments in RedHat OpenShift for multiple app versions in production, and, at the same time, for scaling and moving to newer applications. In addition, it provides A/B management in OpenShift of two or more app versions for development and testing at the same time. Finally, Container Ingress Services enables greater flexibility and usability with pre-existing policies and profiles for OpenShift Routes and annotations to rewrite target URLs for Kubernetes Ingress.

With self-service application routing and security enabled, BIG-IP app performance and security services are easily implemented—with an additional label within the container UI for app scale, availability, and security. Automated event discovery occurs when the app is created and a virtual server and pool are automatically added to the BIG-IP platform—in the systems team or app developer partition for Ingress control.

SCALABILITY AND SECURITY WITH APP SERVICES INSERTION

Container Ingress Services integrates into your container orchestration and F5 application performance and security services—helping you scale out apps through PaaS and containerized environment integrations, automate discovery of app instances, and add app services insertion for workloads. This improves the developer and user experience through integration with native application deployment workflows. It also allows you to deploy a broader set of F5 application services into new distributed architectures.

FASTER DEPLOYMENT AND END-TO-END VISIBILITY

F5 offers faster application deployments and simplified policy management with predefined BIG-IP templates. Easily configure PaaS and container integrations with Ingress control services using standardized templates, delivering consistent policies across established and emerging app architectures. BIG-IP gives you complete visibility and observability of all container traffic and enhances app insights via data-stream export to analytics platforms like Splunk. They deliver a rich set of L4–7 stats in a third-party-compatible, SIEM format for timely export and analytical reporting.

INGRESS OR INGRESS: WHAT'S THE DIFFERENCE?

Ingress can refer to HTTP routing or a collection of rules used to reach the cluster services. Ingress also refers to inbound connections, app load balancing, and security services.

You can deploy Helm charts for Container Ingress Services consumability that showcase a way to package, version, and consume Kubernetes resources. This simplifies application deployments, upgrades, composability, and deployment reproduction.

F5 IngressLink combines BIG-IP and Container Ingress Services (CIS) with NGINX Ingress Controller into a single solution to deliver unified app services for fast-changing, modern applications in Kubernetes environments. F5 IngressLink is a two-tier solution that uses BIG-IP devices outside (at the edge of) the Kubernetes cluster, and several NGINX Ingress Controller instances within the cluster. Configuration and state are automatically shared between the BIG-IP, CIS and NGINX tiers by the F5 IngressLink resource.

With F5 IngressLink, app services are DevOps aligned and driven at the speed of app development and deployment requirements. Enterprises benefit from the security and availability of their trusted BIG-IP platforms and the ability to use these rich capabilities to deliver their container applications. DevOps teams benefit from the application-focused capabilities of NGINX Ingress Controller and its high-performance control plane that improves the speed and pace of application deployment and management. IngressLink manages the coordination between BIG-IP NetOps and NGINX DevOps teams, reducing delays and errors.

Finally, F5 enables easy integration into overlay technology such as OpenShift SDN, Flannel VXLAN and Host-GW, and Calico for fast cluster networking. These seamless integrations increase the speed with which you can select connector options—helping you to meet your container overlay requirements quickly and align to rapid deployment practices.

F5 Global Services

F5 Global Services offers world-class support, training, and consulting to help you get the most from your F5 investment. Whether it's providing fast answers to questions, training internal teams, or handling entire implementations from design to deployment, F5 Global Services can help ensure your applications are always secure, fast, and reliable. For more information about F5 Global Services, contact consulting@f5.com or visit f5.com/support.

DevCentral

The F5 DevCentral™ user community of more than 300,000 members is your source for the best technical documentation, discussion forums, blogs, media, and more related to app services.

More Information

To learn more about F5 Container Ingress Services, use the search function on f5.com to find these and other resources.

Web pages

Optimize Container Management with F5
F5 Container Ingress Services
How it Works

Datasheet

BIG-IP Local Traffic Manager

Articles

Improving Support for Containerized Apps
Blog Series: Container Security Basics
Container Native App Services
My first deployment of IngressLink

White papers

F5 and Containerization
2021 State of Application Strategy Report

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