Solution Brief

NetScaler Ingress Controller for Red Hat OpenShift

netscaler™

Red Hat

Only NetScaler offers a fully automated proxy and ingress controller for complete application platform based on Kubernetes environments — at no additional cost — that runs as a container within a Kubernetes cluster and converts any microservices-based application's ingress definitions into NetScaler ADC configurations

NetScaler and Red Hat OpenShift for Kubernetes deployments

Many organizations are focusing on application modernization by adopting cloud, containers, and microservices to more efficiently deliver and secure their applications. Gartner predicts that by 2029, more than 95 percent of global organizations will be running containerized applications in production, which is a significant increase from 50 percent in 2023.

Red Hat OpenShift is a Kubernetes-based container platform that helps you modernize existing applications and provides a consistent, scalable, and flexible foundation to build, deploy, and manage new cloud-native applications across multiple environments. The Red Hat OpenShift Container Platform also offers platform consistency and compliance features to deploy business-critical applications across hybrid environments.

NetScaler is an application delivery and security platform and a Red Hat OpenShift Operator certified partner that gives you a faster, flexible, and consistent way to securely deliver applications in Kubernetes environments at scale. NetScaler Ingress Controller enables you to use the advanced load balancing and traffic management capabilities of NetScaler for routing, securing, and optimizing ingress traffic to a single or multiple OpenShift clusters.

Benefits of using NetScaler with OpenShift

Use NetScaler operators for OpenShift ingress

Getting requests into and out of an OpenShift cluster can be challenging. NetScaler operators use Kubernetes constructs for providing ingress control into OpenShift clusters as well as automating the lifecycle management of NetScaler hardware and software application delivery controllers (ADCs).

Provide access to services external to an OpenShift cluster

NetScaler seamlessly integrates into your existing networking fabric without creating additional hops and eliminates the need to re-architect your network. You can either

deploy a NetScaler ADC outside an OpenShift cluster or deploy NetScaler CPX (a containerized ADC) as a pod inside the cluster.

Ensure consistent ingress across on-premises and cloud

Deploying microservices both on-premises and in public clouds can result in inconsistencies and increased operational complexity due to the use of different ingress methods across environments. NetScaler addresses this issue by offering a consistent ingress approach for hybrid cloud application delivery.

Route application traffic

You can route traffic between containers inside OpenShift clusters using NetScaler CPX, a containerized application delivery controller.

Optimize application traffic

NetScaler observability goes beyond simple monitoring to not only alert you that something is wrong, but to also help you pinpoint application issues so you can fix them faster.

Automate security configuration

NetScaler supports SSL and mTLS as well as all certificate and key management solutions including Let's Encrypt.

Ensure failover handling for high availability

As the access point for traffic into the cluster, NetScaler elastically scales to handle failover events without disruption or downtime.

Enable rolling upgrades

The ability to upgrade applications without disrupting traffic is non-negotiable for production environments. NetScaler Ingress Controller supports software updates without downtime.

Use Cases

NetScaler enhances OpenShift deployments by optimizing application performance and providing comprehensive security and end-to-end observability. NetScaler as an ingress solution efficiently routes traffic for applications deployed on OpenShift along with securing these applications with features like Web App Firewall (WAF) and SSL/TLS offloading. It also integrates seamlessly with OpenShift's service discovery and CI/CD pipelines, supports auto-scaling, and offers detailed analytics for better traffic management. These capabilities ensure that OpenShift applications are highly available, secure, and efficient.

Modernize legacy applications

OpenShift uses ingress to control access to the services in a cluster, and NetScaler Ingress Controller provides load balancing, SSL termination, and name-based virtual hosting. NetScaler includes features that add security, monitoring, and controls to inbound requests. NetScaler Ingress Controller watches for changes in the Kubernetes cluster and automatically configures the NetScaler ADC to provide access to the applications deployed as microservices. IPAM delivers the IP address needed, and NetScaler Ingress Controller updates the NetScaler entities (services), ensuring that users can access the application without interruption.

Migrate legacy applications to OpenShift with no downtime

Traditionally, applications were written to use the TCP/UDP networking protocols, but Kubernetes ingress objects don't support TCP, TCP-SSL, or UDP for microservices-based applications. NetScaler Ingress Controller supports TCP/UDP protocols along with HTTP/HTTPS requirements for modern application delivery.

Secure OpenShift microservices applications

NetScaler ADCs positioned in front of OpenShift applications can load balance various types of traffic, including HTTP, TCP, SSL, and non-HTTP protocols, using certified NetScaler operators. NetScaler performs SSL offloading and TLS termination (end-to-end TLS), enhancing security and performance. Additionally, NetScaler offers robust protection against web application attacks such as SQL injection, cross-site scripting (XSS), and other OWASP top 10 vulnerabilities.

Deploy global server load balancing (GSLB)

NetScaler is key for multi-cluster management by providing GSLB to manage traffic across multiple OpenShift clusters, enhancing disaster recovery, and performing geographical load distribution. GSLB improves the application end-user experience by directing users to the nearest or best-performing data center to reduce latency.

Streamline traffic management for both networking and OpenShift teams

NetScaler is the only ADC that provides operational consistency because it is built with a single code base. It behaves the same way for both networking and OpenShift teams: Networking admins deploy NetScaler as a hardware ADC or software ADC in front of OpenShift clusters, and OpenShift admins deploy NetScaler CPX as a containerized ADC inside the cluster.

Automate traffic routing with multi-cluster ingress

Applications that scale across multiple OpenShift clusters require a single, consistent ingress for traffic management. NetScaler multi-cluster ingress provides load balancing for the external HTTP(S) traffic coming from the internet across one or more OpenShift clusters. It delivers better performance and reliability for OpenShift applications by providing multi-regional, multi-cluster availability through health checking and traffic failover. NetScaler multi-cluster ingress also ensures transparent OpenShift cluster migration for upgrades and cluster rebuilds.

Enhance application performance with end-to-end observability

For traditional and microservices applications using OpenShift, NetScaler provides granular data in three key areas that are crucial to ensuring high-performing and secure applications: application and API insights, application security and API security insights, and network and infrastructure insights. You have the flexibility to consume the data via command line on the NetScaler ADC, via NetScaler Console, via API, or through third-party observability data visualization tools including Splunk, Prometheus, Grafana, Elasticsearch, New Relic, Azure Sentinel, Dynatrace and more.

Conclusion

NetScaler is an elegant solution for routing, securing, and optimizing ingress traffic to a single or multiple OpenShift clusters for Kubernetes deployments. It provides integrated external load balancing services for the cluster node components for high availability, scalability, and security. Additionally, NetScaler Ingress Controller and NetScaler CPX can be deployed inside OpenShift clusters to provide failover handling for high availability, automated security configurations for a consistent security posture, and SSL security for HTTP/HTTPs applications.

About Red Hat

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