

Nginx ingress vs Istio ingress

NGINX Ingress (github.com/nginxinc/kubernetes-ingress)

Implemented in: Go/Python

License: Apache 2.0

This is the official product from NGINX developers which also has a commercial version based on NGINX Plus.

- high stability level,
- constant backward compatibility,
- absence of any third-party modules,
- high speed (in comparison with the official controller) (due to no Lua code.)

The freeware version is significantly limited, even when compared with the official controller (due to the absence of mentioned above Lua modules). At the same time, the **paid version** has a fairly wide additional functionality: real-time metrics, JWT validation, active health checks, and so on. The important advantage over NGINX Ingress is the full support for TCP/UDP traffic (and in the community version too!).

Some prominent features (including requests tracing with OpenTracing and improved traffic splitting) have been added to this controller with its v1.6.0 release in Dec'19.

Istio Ingress (istio.io/docs/tasks/traffic-management/ingress)

Implemented in: Go

License: Apache 2.0

Istio — created as a joint project of IBM, Google, and Lyft (original authors of Envoy)— is a comprehensive service mesh solution. It can manage not just all incoming outside traffic (as an Ingress controller) but control all traffic inside the cluster as well. Under the hood, Istio uses **Envoy** as a sidecar proxy for each service. In essence, it is a large processor that can do almost anything. Its central idea is **maximum control, extensibility, security, and transparency**.

With Istio Ingress, you can **fine-tune traffic routing**, access authorization between services, balancing, monitoring, canary releases and much more.

	Nginx ingress	Istio ingress
Auth	Basic, external auth, digest	JWT
Service discovery	dynamin	dynamic
protocol	http,https,tcp (separate lb),udp,grpc,fastcgi,IPC socket	tcp,http,https,grpc
Build on	nginx	Envoy https://envoyproxy.io/
Ssl termination	yes	yes
Websocket	yes	yes
routing	host,path(with regex)	Host,user identity,
scope	cross-namespace	cross-namespace
resiliency	rate limit, retries	circuit break , retries
algorithms (LB)	rr,ewma,ip_hash	rr,leastconn,random,passthrough
istio integration	-	yes
Paid support	yes	-
dashboard	grafana	Metrics can be seen in Grafana and Prometheus, tracing can be seen through jaeger or zipkin UI
sticky sessions	yes	yes
Tracing	yes	yes
Configuration reloading	-	Yes, Dynamic , maintain connection and reload to new config
Egress gateway	-	yes

To do

1. need to realize the requirements from the application itself, business and developers
2. Experiment
3. List specific research vector