Docker Container

Running Containers in Production

npNOG 10

November 25 - 28, 2024

Things to consider when running in production

1. How to trust container image?
2. DNS
3. Reverse Proxy
4. IPv6
5. SSL
6. Volumes instead of bind mounts

How to trust container image?

- Always try to get docker image from the official developer of the project
- Check source Git repo connected to the docker hub project
- Read the Dockerfile to see what it's doing
- Run in sandbox and stageing environment first

DNS

- Make use of DNS on your applications. Makes URLs easy to remember
- Makes adding SSL much easier
- Makes changing of host machines easy without change of IP addresses
- Makes IPv6 deployment easy

Reverse Proxy

Reverse proxy is a server that sits between a client and a server

- It can handle multiple domains and applications
- HTTP port 80 and HTTPS port 443 terminates on the reverse proxy server
- Reverse proxy connects to backend container on their respective port
- SSL, ACL etc is managed by the reverse proxy
- Saves IPv4 address!
- Makes life easy with wildcard DNS as well as SSL certificates

Reverse Proxy

Clients on the intenet

Reverse Proxy

Resources on a private network
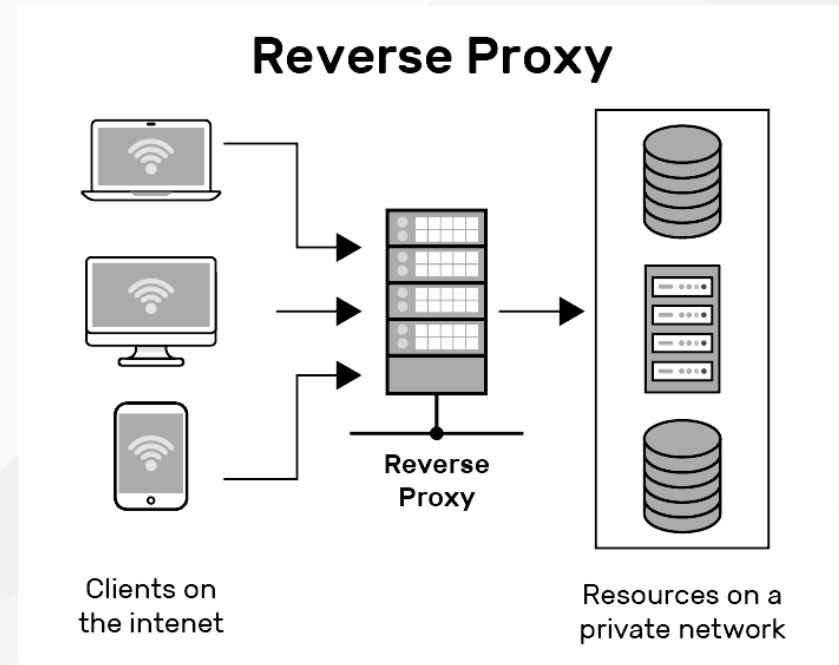
Traefik

Traefik (pronounced traffic) is a modern HTTP reverse proxy and load balancer that makes deploying microservices easy. Traefik integrates with your existing infrastructure components (Docker, Kubernetes, Rancher v2, ...) and configures itself automatically and dynamically. Pointing Traefik at your orchestrator should be the only configuration step you need.
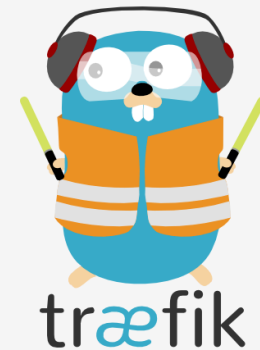
Features:

- Continuously updates its configuration (No restarts!)
- Supports multiple load balancing algorithms
- Provides HTTPS to your microservices by leveraging Let's Encrypt (wildcard certificates support)
- Provides metrics (Rest, Prometheus, Datadog, Statsd, InfluxDB 2.X)
- Keeps access logs (JSON, CLF)
- Fast
- Exposes a Rest API
- Packaged as a single binary file and available as an official docker image

NGINX Proxy Manager

NGINX Proxy Manager is a reverse proxy server

Features:

- Beautiful and Secure Admin Interface
- Easily create forwarding domains, redirections, streams and 404 hosts without knowing anything about Nginx
- Free SSL using Let's Encrypt or provide your own custom SSL certificates
- Access Lists and basic HTTP Authentication for your hosts
- Advanced Nginx configuration available for super users
- User management, permissions and audit log

Caddy

Volumes instead of bind mounts

- Always prefer volumes instead of bind mounts unless you need to touch the data (e.g configs)
- Volumes take care of permissions better than bind mounts
- Volume backup & restore is easier than the bind mounts

Manage Docker Contaner from a Web UI

Yatch

A web interface for managing docker containers with an emphasis on templating to provide one-click deployments of dockerized applications. Think of it like a decentralized app store for servers that anyone can make packages for.

Features:

- Container templating compatibility (Portainer compatible)
- Basic container management
- Easy template updating
- Template Variables to allow for a one-click experience
- Guided container deployment
- Dashboard for monitoring all of your docker containers in one place
- Docker-compose compatibility and editor
- One click editing of containers