Section 7 - Container Images - Docker Hub Registry
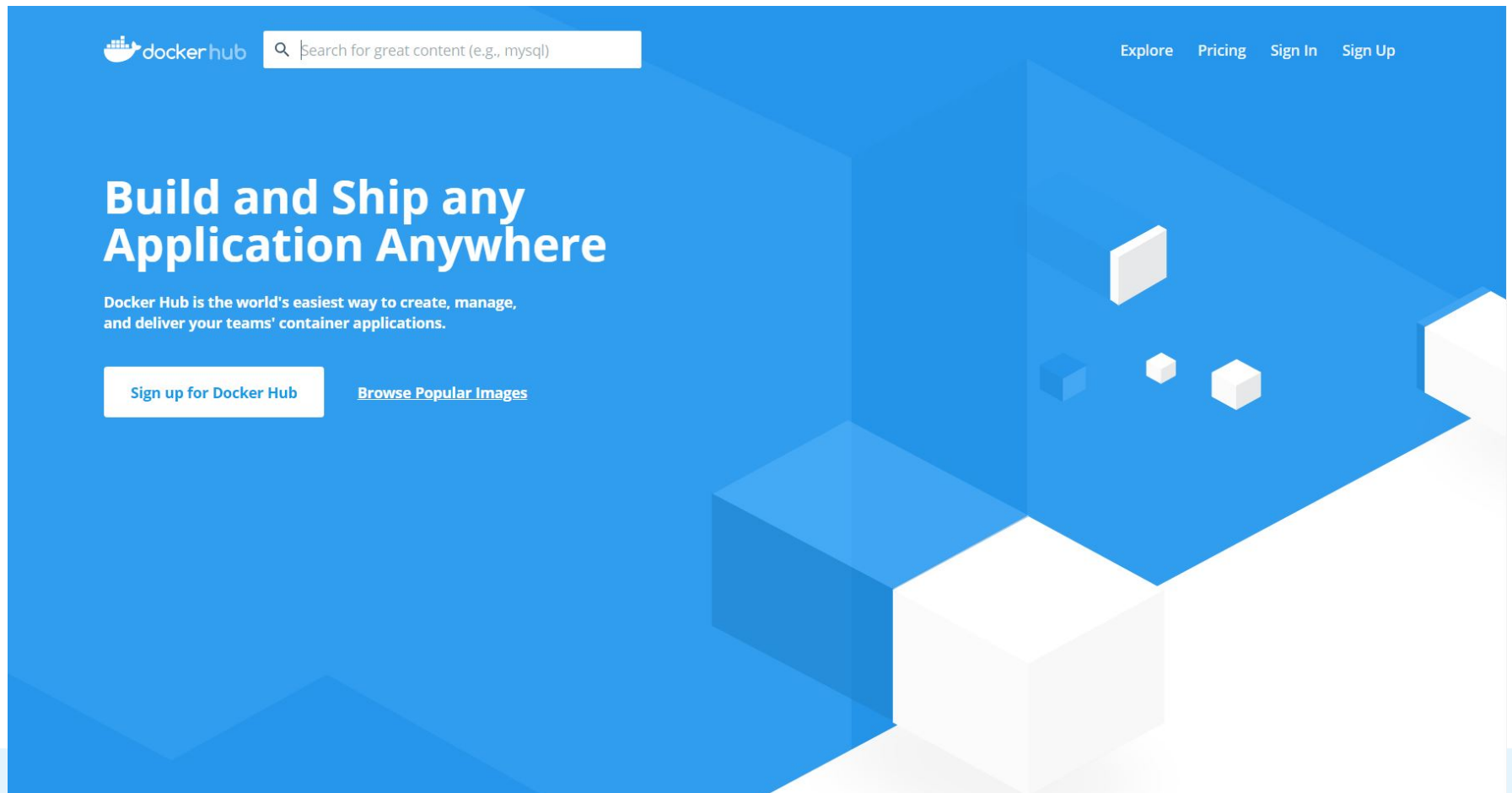
2 The Docker Hub Registry

overview

- Basics of Docker Hub (hub.docker.com)

- Find Official and other good public images

- Download images and basics of image tags

Basics of Docker Hub (hub.docker.com)

- https://hub.docker.com/

Docker Hub - search images (1)

- search nginx

Docker Hub - search images (2)

- Official images

- Number of downloads and starts

> Note:
>
> - The Repository name of an official image does not have the "account_name/" as the unofficial image has.
> - When we publish an image to the docker hub, the repository name will be for example "gerassimos/nginx". The account name "gerassimos" will be part of the repository name.
> - The "account_name" could be also the name of an organization.

Docker Hub - Official images

Ref: https://docs.docker.com/docker-hub/official_images/

- Docker, Inc. sponsors are a dedicated team that is responsible for reviewing and publishing all content in the Official Images.

- This team works in collaboration with upstream software maintainers, security experts and the broader Docker community.

- Well tested

- Created from "Dockerfiles" obeying best practice rules

- Provide good documentation

docker

Docker Hub - nginx example

docker hub   🔍 Search for great content (e.g., mysql)   Explore   Pricing   Sign In   Sign Up

nginx ☆

Docker Official Images

Official build of Nginx.

⬇ 10M+

Linux - x86-64 (latest) ▲
Linux - ARM (latest)
Linux - x86-64 (latest)
Linux - IBM Z (latest)
Linux - PowerPC 64 LE (latest)
Linux - x86 (latest)
Linux - ARM 64 (latest)

Container   Linux   x86-64   IBM Z   PowerPC 64 LE   386   ARM 64   ARM   Application Infrastructure

Official Image

DESCRIPTION   REVIEWS   TAGS

Please log in to write a review of this product.

Supported tags and respective `Dockerfile` links

- `1.15.12`, `mainline`, `1`, `1.15`, `latest` (*mainline/stretch/Dockerfile*)

- `1.15.12-perl`, `mainline-perl`, `1-perl`, `1.15-perl`, `perl` (*mainline/stretch-perl/Dockerfile*)

docker

Docker Hub - nginx example

- Image tag => information about a specific image version/variant.

- A version of an image can have more than one tag

- Supported tags and respective Dockerfile links

  - 1.15.12, mainline, 1, 1.15, latest => are all versions of the same image

  - 1.15.12-alpine, mainline-alpine, 1-alpine, 1.15-alpine, alpine

- How to use this image

- Using environment variables and other configuration

docker pull nginx - latest

- If you do not specify a `tag` then latest `tag` is used.

```
# docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
Digest: sha256:e71b1bf4281f25533cf15e6e5f9be4dac74d2328152edf7ecde23abc54e
Status: Image is up to date for nginx:latest
```

Notes:

- The latest is just a tag, there is no guarantee that will point to the newest version of the application that the image refers to.
- The use of latest tag in production is an anti-pattern.
- Avoid the use of the latest tag.
- The docker client will check the "Digest: sha256" number to verify if the image is already available in the local cache.

docker pull nginx - specific tag

```
# docker pull nginx:1.15.12
1.15.12: Pulling from library/nginx
Digest: sha256:e71b1bf4281f25533cf15e6e5f9be4dac74d2328152edf7ecde23abc54e:
Status: Downloaded newer image for nginx:1.15.12

# docker image ls nginx
REPOSITORY     TAG          IMAGE ID       CREATED        SIZE
nginx          1.15.12      27a188018e18   9 days ago     109MB
nginx          latest       27a188018e18   9 days ago     109MB
```

Note 1

- Both the "nginx:latest" and "nginx:1.15.12" are pointing to the same image, they have the same "IMAGE ID"
- These aren't actually two different copies of 109MB images.
- Space occupied on disk will be 109MB for all nginx images with the same image ID.

- **In production we will always use a specific version.**

docker pull nginx - alpine version

```
# docker image pull nginx:1.15.12-alpine
```

- In this example we used the 1.15.12-alpine tag.

- This is an image based on the alpine linux distribution, which is very small in size (5MB).

GitHub repository

- Go the the linked GitHub repository to see the related "Dockerfile" and understand how the image are built.

- Example:

- https://github.com/nginxinc/docker-nginx/blob/master/mainline/stretch/Dockerfile

Note: Use the "Dockerfile" of the official images as a reference for best practice.

Create your custom Nginx version

- This is very similar to the model of GitHub, where they allow you to store open source software and you can fork other people's software.

- The same thing goes here. You can use other people's images and make them your own.