

Docker для фронтендера

Алексей Авдеев, Neuron.Digital



Frontend
Conf
2019

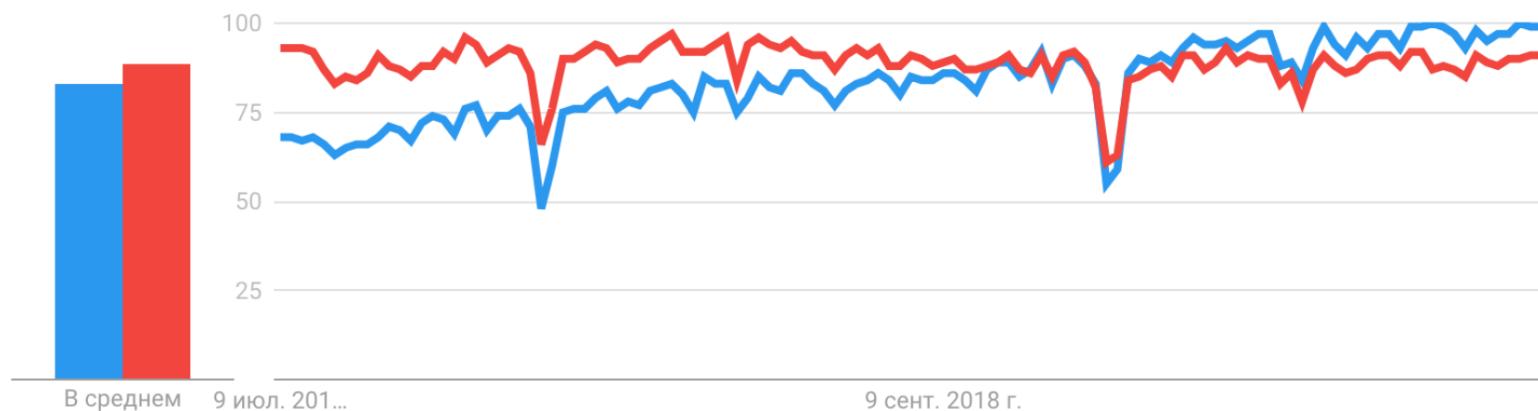
Профессиональная
конференция
фронтенд-
разработчиков



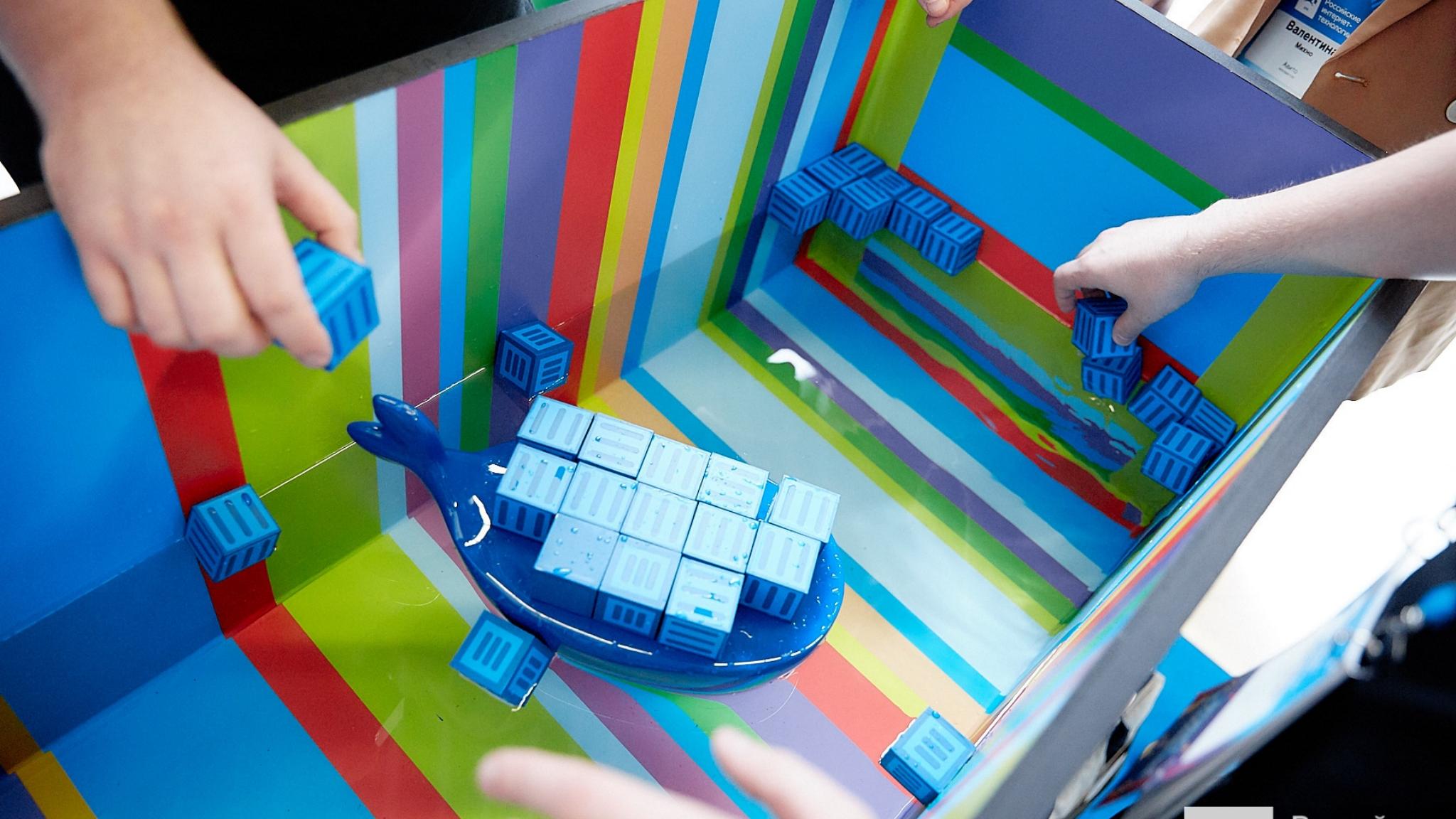
Динамика популярности

Google Trends

● Docker ● Node.js



По всему миру. 09.07.2017 – 07.10.2019. Веб-поиск.



Required for any path

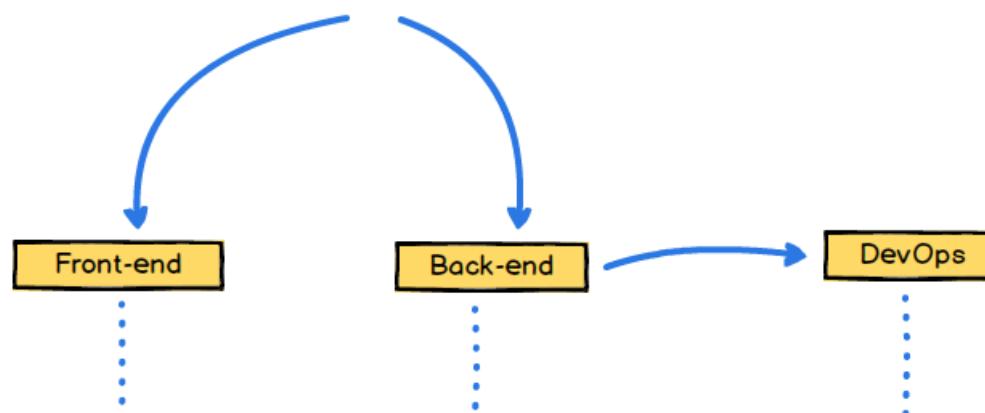
- Git - Version Control
- Basic Terminal Usage
- Data Structures & Algorithms
- SOLID, KISS, YAGNI
- GitHub
- Licenses
- Semantic Versioning
- SSH
- HTTP/HTTPS and APIs
- Design Patterns
- Character Encodings

Web Developer in 2019

Legends

- Personal Recommendation!
- Available Options

Choose your path



Требования:

Docker

Ǝpa Docker



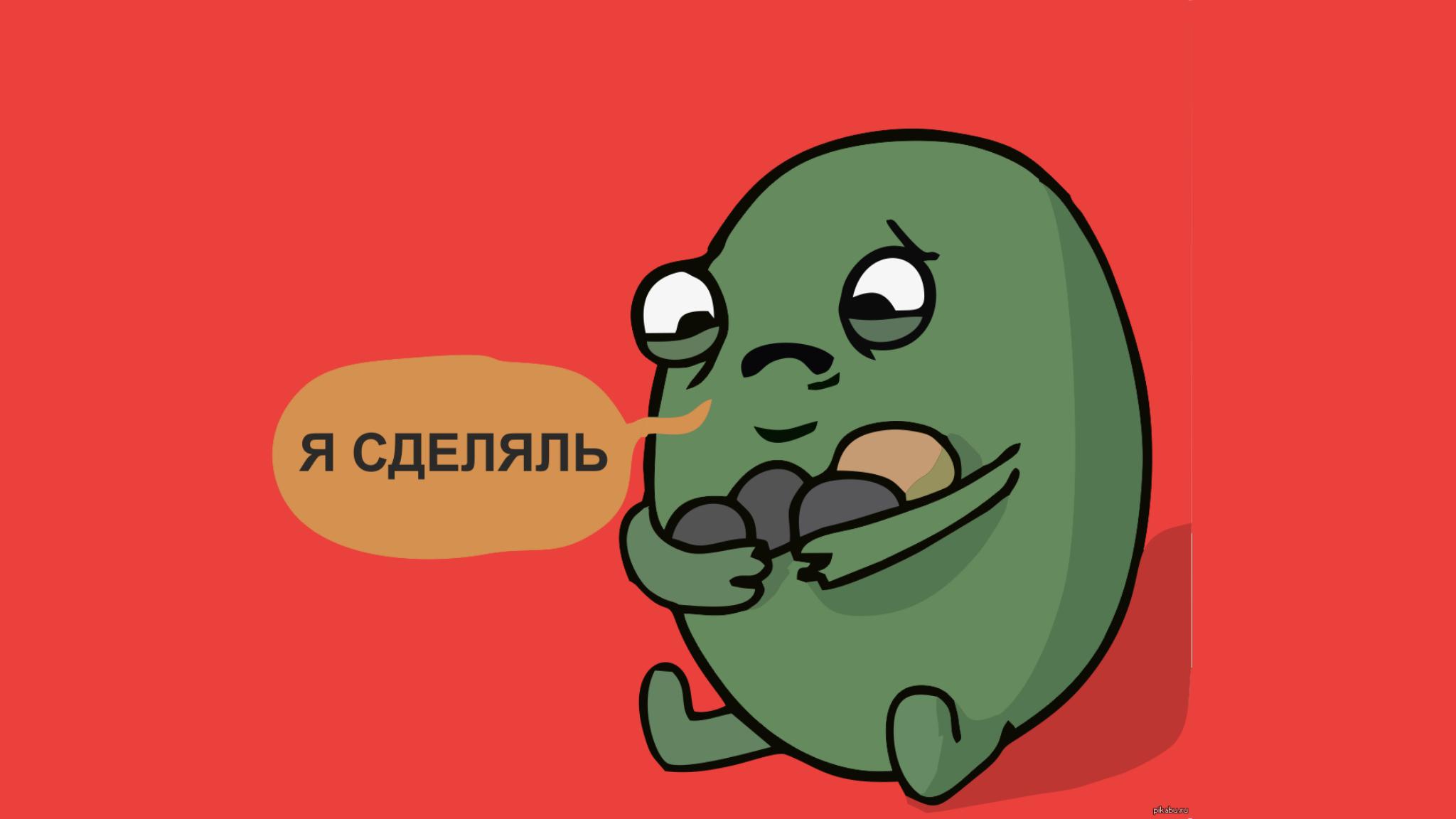
О себе

1. 🧑 Алексей Авдеев (<https://github.com/avdeev>)
2. 💼 Руководжу командой фронтенд-разработчиков
3. 🏙 Из Нижнего Новгорода, работаю в Москве
4. 🌐 [Neuron.Digital](#)
5. 🤖 Программирую с 2002 года

Зачем?

Поднимаем

backend



я сделяль



Без Docker

01. \$ brew update

02. \$ brew install mysql

03. . . .

04. \$ \curl -sSL https://get.rvm.io | bash

05. . . .

06. \$ rails s

Frontend

1. Node.js >= 6
2. npm >= 3

Backend

1. go1.11*
2. MySQL*
3. Redis*
4. Elasticsearch
5. Capistrano
6. Syslog
7. Postgresql (comments)

Настройка сервера

1. Установить GVM (<https://github.com/moovweb/gvm>)
2. `gvm install go1.11.13 --binary`
3. `gvm use go1.11.13 --default`
4. В папке с проектом создать ссылку на golang (`gvm linkthis`)
5. Установить `gb` `go get github.com/constabulary/gb/...`
6. Настроить авторизацию `git config --global url."git@git[REDACTED].insteadOf "https://gi[REDACTED]"`
7. Установить зависимости `gb vendor restore`
8. [Поднять БД](#)
9. Собрать ассеты `npm run build` (`npm run build:dev` для разработки)
10. Запустить сервер `npm start`

Elasticsearch

1. Скачать и установить Elasticsearch `brew install elasticsearch` - macOS (предложит установить дистрибутив java)
2. Установка плагина
3. выбери в <https://github.com/imotov/elasticsearch-analysis-morphology> из списка подходящий к твоей версии плагин, и запусти
`/usr/local/Cellar/elasticsearch/2.3.3/libexec/bin/plugin install http://dl.bintray.com/content/imotov/elasticsearch-plugins/org/elasticsearch/elasticsearch-analysis-morphology/2.3.3/elasticsearch-analysis-morphology-2.3.3.zip` - пример
4. потом перезапусти эластик `brew services restart elasticsearch`
5. в проекте админки `rake environment elasticsearch:import:model CLASS='Tag' FORCE=y` `rake environment elasticsearch:import:model CLASS='Post' FORCE=y` индексировать будет долго, но пользоваться можно сразу

Postgres comments db

1. `psql -U postgres -h localhost`
2. `create database comments_dev;`

Redis install and start

1. `brew install redis`
2. Перед запуском `brew services start redis`



C Docker

01. \$ docker-compose up api

02. ...

03. Listening localhost:8080



C Docker

Запуск композа

```
docker-compose up --build
```

Опционально можно запустить только необходимые сервисы, передав их названия через пробел

```
docker-compose up --build admin-api admin-nginx
```

Автоматизирай

Устойчивость



A problem has been detected and Windows has been shut down to prevent damage to your computer.

The problem seems to be caused by the following file: SPCMDCON.SYS

PAGE_FAULT_IN_NONPAGED_AREA

If this is the first time you've seen this Stop error screen, restart your computer. If this screen appears again, follow these steps:

Check to make sure any new hardware or software is properly installed. If this is a new installation, ask your hardware or software manufacturer for any Windows updates you might need.

If problems continue, disable or remove any newly installed hardware or software. Disable BIOS memory options such as caching or shadowing. If you need to use Safe Mode to remove or disable components, restart your computer, press F8 to select Advanced Startup Options, and then select Safe Mode.

Technical information:

*** STOP: 0x00000050 (0xFD3094C2,0x00000001,0xFBFE7617,0x00000000)





C Docker

```
$ docker rm --volumes api
```

```
$ docker system prune --all
```

Контролируем

эксплуатацию





Без Docker

1. nvm use 10
2. npm install
3. npm run build
4. Раздаём папку /dist веб-сервером



C Docker

упаковано в

Docker



Available 18 Stopped 1

New environment

Environment	Deployment	Job	Commit	Updated
-------------	------------	-----	--------	---------

production	#65 by 	deploy_prod #109750	-o b9eeb387  Merge branch 'release-1.0.2'	a week ago	<input type="checkbox"/> Re-deploy
------------	--	---------------------	---	------------	------------------------------------

staging 17

Deploy to...

		Re-deploy
---	---	-----------

staging/bugfix-...	#47 by 	deploy_stage #109322	-o 43a3b6be  added download file name	a week ago	 <input type="checkbox"/> Re-deploy
--------------------	--	----------------------	---	------------	--

staging/deploy...	#24 by 	stop_staging #108452	-o b49141db  Merge branch 'dev' into deploy/api-r...	a week ago	<input type="checkbox"/> Re-deploy
-------------------	--	----------------------	--	------------	------------------------------------

staging/deploy...	#18 by 	stop_staging #107752	-o 3ed60cf2  trying to fix requests to api	2 weeks ago	<input type="checkbox"/> Re-deploy
-------------------	--	----------------------	--	-------------	------------------------------------

Show all





KEEP CALM
IT WORKS

ON ALL MACHINES

Пишите код для
продакшна

**ЧТО
ТЫ
ТАКОЕ?**





Dave Frenkel
@merr1k

Читать



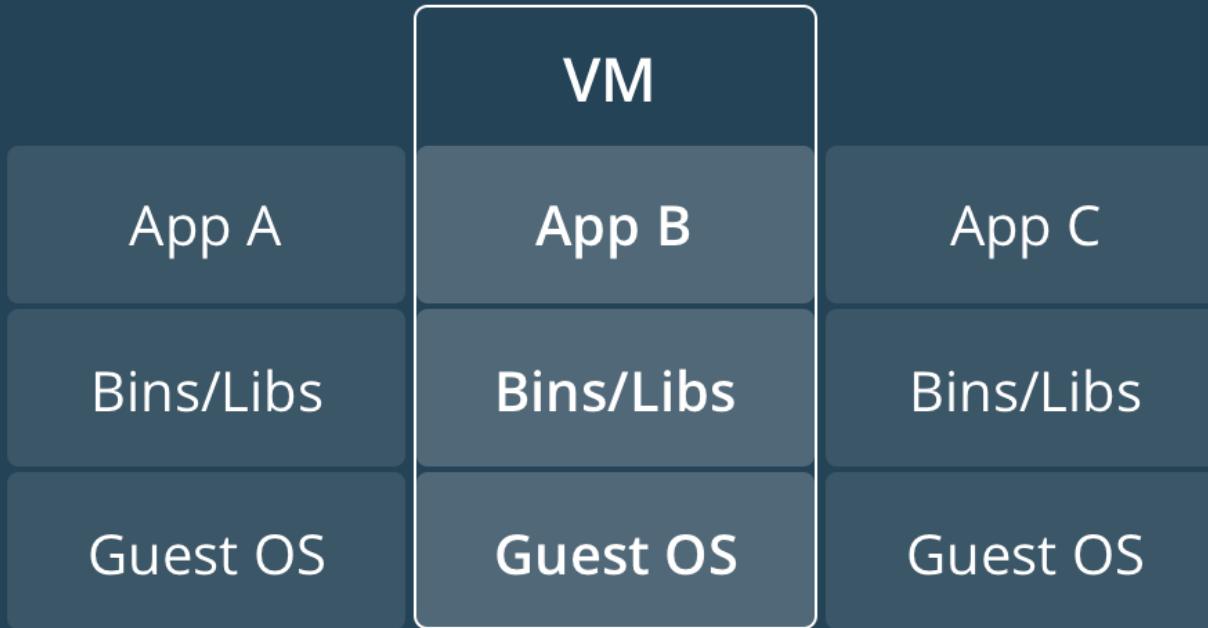
А знаете, как зовут игроков в доку 2?
Докерами. А знаете, что у них на
логотипе? Синий кит!



2:58 - 18 окт. 2018 г.



**Безопасно собирайте, делитесь
и запускайте любое
приложение где угодно**



VM

App A

App B

App C

Bins/Libs

Bins/Libs

Bins/Libs

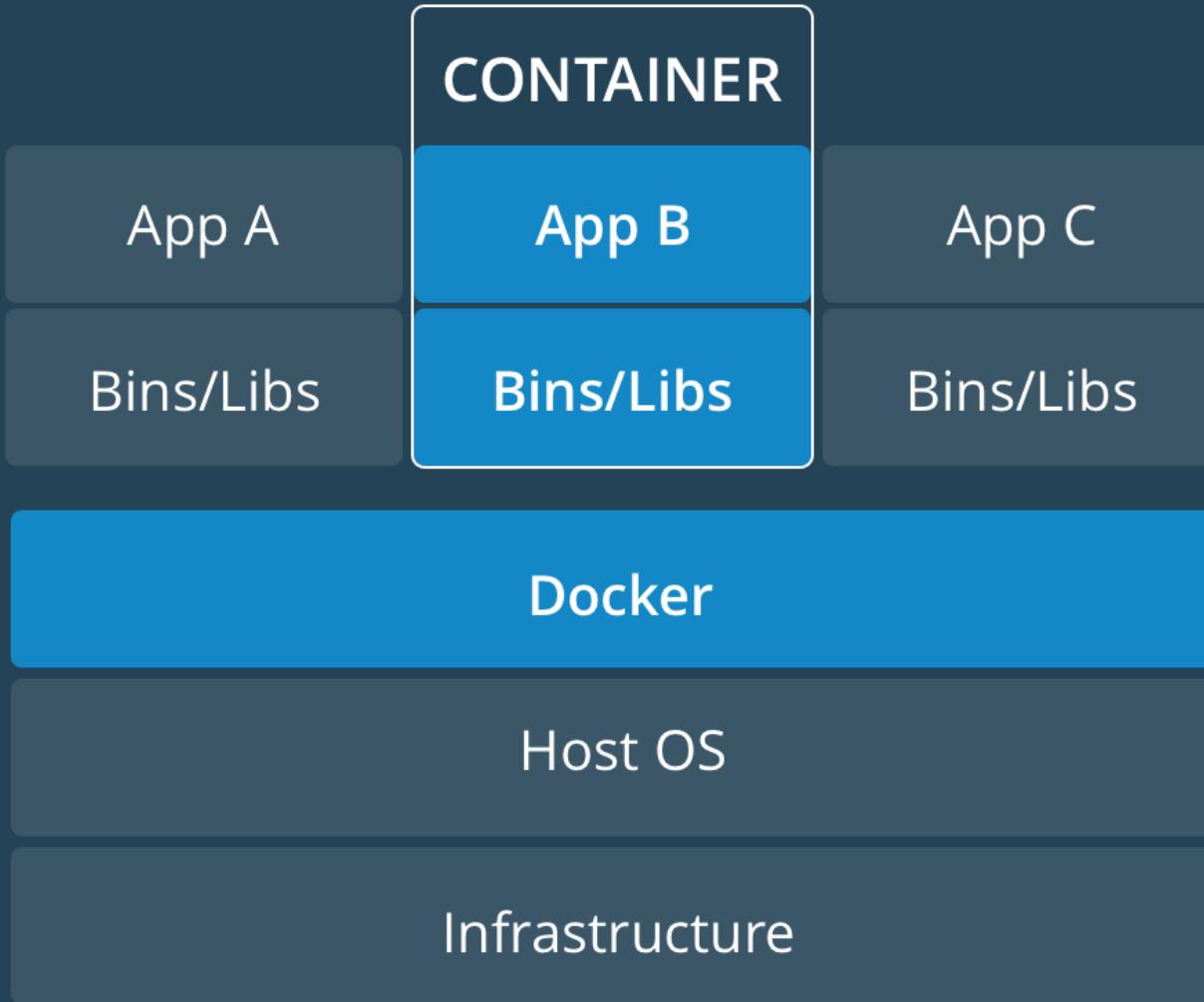
Guest OS

Guest OS

Guest OS

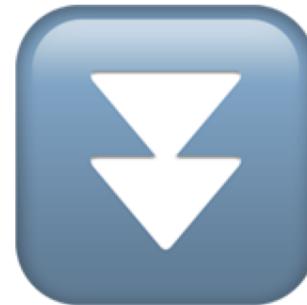
Hypervisor

Infrastructure



установка

Docker

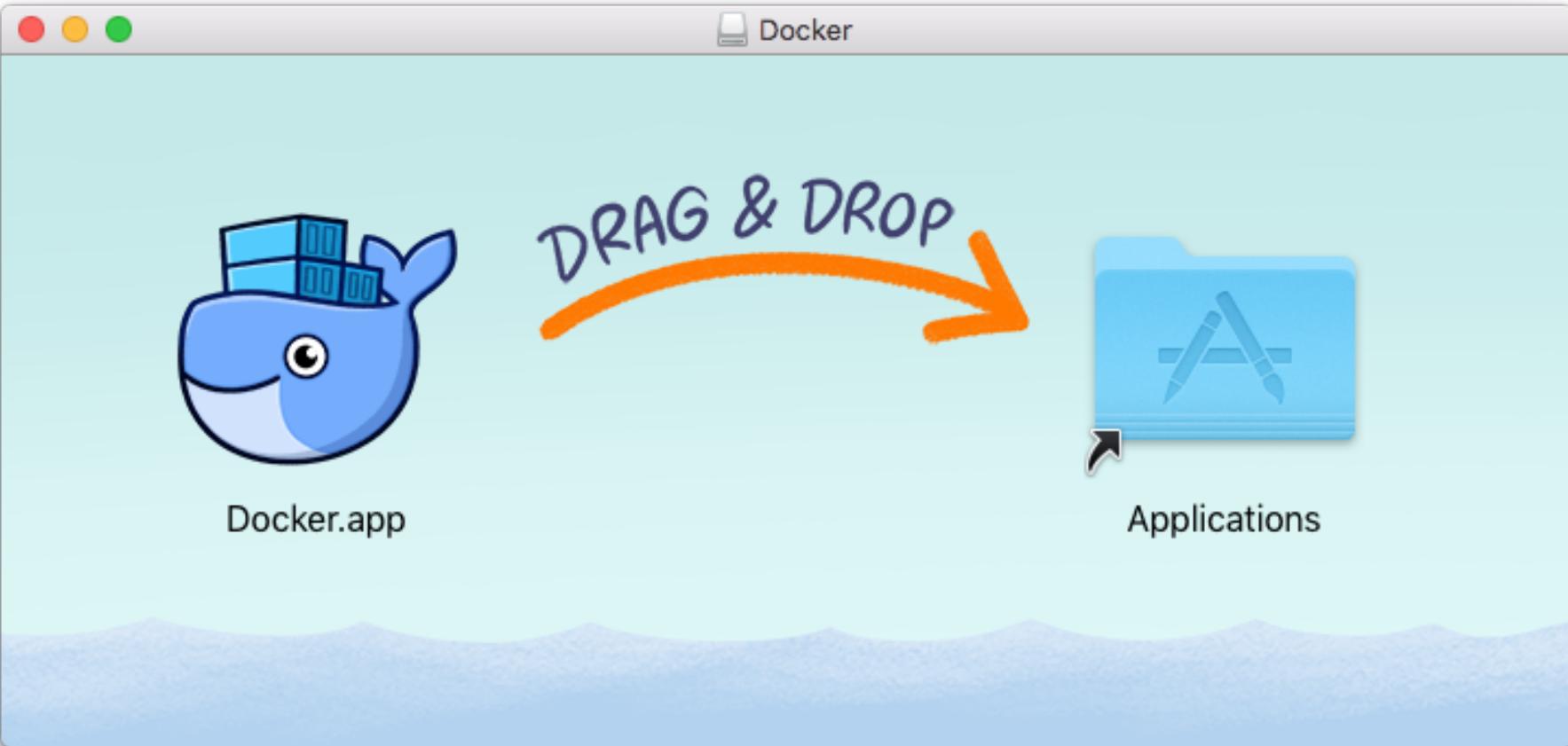


DESKTOP

Platform	x86_64
Docker Desktop for Mac (macOS)	<input checked="" type="checkbox"/>
Docker Desktop for Windows (Microsoft Windows 10)	<input checked="" type="checkbox"/>

SERVER

Platform	x86_64 / amd64	ARM	ARM64 / AARCH64	IBM Power (ppc64le)	IBM Z (s390x)
CentOS	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Debian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Fedora	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Ubuntu	<input checked="" type="checkbox"/>				





Установка Docker через Homebrew

```
$ brew cask install docker
```

Что входит в Docker Desktop

- Docker Engine
- Docker CLI client
- Docker Compose
- Docker Machine
- Kitematic

Docker – это не

только для

админов

Что-то для админов

- docker run
- docker build
- Dockerfile
- Image
- DockerHub

Docker как NPM,

но для Ops

Знакомые понятия

- docker run  npm start
- docker build  npm run build
- Dockerfile  package.json
- Image  Package
- DockerHub  NPM Registry

Знакомые понятия

- Проект начал как проприетарная разработка
- Используется для всего подряд
- Есть альтернативы, призванные заменить

Explore - Docker Hub

hub.docker.com/search?q=&type=image

Docker Hub

Search for great content (e.g., mysql)

Explore Sign In Pricing Get Started

Docker EE Docker CE Containers Plugins

Filters 1 - 25 of 2 710 759 available images. Most Popular

Docker Certified

Docker Certified

Images

Verified Publisher
Docker Certified And Verified Publisher Content

Official Images
Official Images Published By Docker

Categories

Analytics
 Application Frameworks
 Application Infrastructure
 Application Services
 Base Images
 Databases
 DevOps Tools

Oracle Database Enterprise Edition

By Oracle • Updated 2 years ago

Oracle Database 12c Enterprise Edition

Container Docker Certified Linux x86-64 Databases

Oracle Java 8 SE (Server JRE)

By Oracle • Updated 9 days ago

Oracle Java 8 SE (Server JRE)

Container Docker Certified Linux x86-64 Programming Languages

Oracle WebLogic Server

By Oracle • Updated 4 months ago

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registry 
Updated 3 minutes ago 

10M+ 2.7K
Downloads Stars

The Docker Registry 2.0 implementation for storing and distributing Docker images

Container Linux ARM 64 ARM x86-64 Featured Images Storage Application Services

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ubuntu
Updated 5 minutes ago **10M+ Downloads** **10K+ Stars**

Ubuntu is a Debian-based Linux operating system based on free software.

Container Linux PowerPC 64 LE 386 x86-64 ARM 64 ARM IBM Z Base Images Operating Systems

Hello World (1)

01. \$ docker run ubuntu:14.04 /bin/echo 'Hello world'

02.

03. Hello world

OFFICIAL IMAGE 

>**hello-world**

Updated 5 minutes ago

10M+ Downloads 1.0K Stars

Hello World! (an example of minimal Dockerization)

Container Linux Windows IBM Z PowerPC 64 LE x86-64 386 ARM ARM 64

Hello World (2)

01. \$ docker run hello-world
02. Unable to find image 'hello-world:latest' locally
03. latest: Pulling from library/hello-world
04. . . .
05. . . .
06. Hello from Docker!
07. This message shows that your installation appears...
08. . . .

52

LOGIN

Containers

+ NEW

Search for Docker images from Docker Hub

FILTER BY All Recommended My Repos My Images

Recommended

 hello-world-nginx A light-weight nginx container that demonstrates the features of Kitematic	 ghost Ghost is a free and open source blogging platform written in JavaScript	 jenkins Official Jenkins Docker image
 redis Redis is an open source key-value store that functions as a data structure server.	 rethinkdb RethinkDB is an open-source, document database that makes it easy to build and scale realtime...	 minecraft The Minecraft multiplayer server allows two or more players to play Minecraft together
 solr Solr is the popular, blazing-fast, open source enterprise search platform built on Apache...	 elasticsearch Elasticsearch is a powerful open source search and analytics engine that makes data easy to...	 postgres The PostgreSQL object-relational database system provides reliability and data integrity.
 ubuntu-upstart Upstart is an event-based replacement for the /sbin/init daemon which starts processes...	 memcached Free & open source, high-performance, distributed memory object caching system.	 rabbitmq RabbitMQ is an open source multi-protocol messaging broker.
 celery Celery is an open source asynchronous task queue/job queue based on distributed...	 mysql MySQL is a widely used, open-source relational database management system (RDBMS).	 mongo MongoDB document databases provide high availability and easy scalability.
 mariadb MariaDB is a community-developed fork of MySQL intended to remain free under the...	 percona Percona Server is a fork of the MySQL relational database management system created by...	 crate CrateDB is a distributed SQL database handles massive amounts of machine data in rea...

Docker CLI Help Settings

Немного рецептов



Sentry

By Sentry, Inc. • Updated 22 days ago

10M+
Downloads

Sentry is a realtime, platform-agnostic error logging and aggregation platform

Container

Linux

x86-64

Application Infrastructure

DevOps Tools

Monitoring

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sonarqube



Updated a few seconds ago

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Downloads Stars

SonarQube is an open source platform for continuous inspection of code quality.

Container

Linux

x86-64

DevOps Tools

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 **wordpress**

Updated 44 minutes ago

The WordPress rich content management system can utilize plugins, widgets, and themes.

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



itzg/minecraft-server

By [itzg](#) • Updated 10 days ago

10M+ 774
Downloads Stars

Minecraft server with select-able version

Container

Linux

x86-64

arm

arm64

 docker

Updated 23 minutes ago

Docker in Docker!

Container Linux Windows PowerPC 64 LE ARM ARM 64 x86-64 IBM Z Featured Images
Application Frameworks

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Запускаем

Lighthouse



Без Docker

01. Установить Google Chrome for Desktop.
02. Установить текущую LTS-версию Node.
03. `$ npm install -g lighthouse`
04. `$ lighthouse http://frontendconf.ru`



femtopixel/google-lighthouse

By [femtopixel](#) • Updated 8 days ago

100K+
Downloads 7
Stars

Google Lighthouse - Docker Image

Container

Linux

x86-64

arm



C Docker

```
01. $ docker run \
02.   --rm \
03.   --name lighthouse \
04.   -it \
05.   --volume ~:/home/chrome/reports \
06.   --cap-add=SYS_ADMIN \
07.   femtopixel/google-lighthouse http://frontendconf.ru
```

Нагрузка



C Docker

01. \$ docker service scale frontend=10

02.

03. frontend scaled to 10

Решение организационных вопросов

Dockerfile

```
LABEL maintainer="aad.jerry@gmail.com"
```

docker inspect

```
$ docker inspect NAME|ID
```

```
01. "Labels": {
```

```
02.   "maintainer": "aad.jerry@gmail.com"
```

```
03. }
```

Выбираем технологию



OFFICIAL IMAGE 

node



Updated 25 minutes ago

10M+ 7.9K

Downloads Stars

Node.js is a JavaScript-based platform for server-side and networking applications.

Container

Linux

PowerPC 64 LE

x86-64

ARM 64

386

IBM Z

ARM

Application Infrastructure

Dockerfile (1)

```
01. FROM      node:10-alpine as builder  
02. WORKDIR /app  
03. COPY      package*.json ./  
04. RUN       npm ci  
05. COPY      vue.config.js babel.config.js ./  
06. COPY      src src  
07. RUN       npm run build
```

 **nginx**

Updated 23 minutes ago

Official build of Nginx.

OFFICIAL IMAGE 

10M+ Downloads 10K+ Stars

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

Dockerfile (2)

```
01. FROM    nginx:1.13-alpine  
02. COPY    nginx /etc/nginx/conf.d  
03. COPY    --from=builder /app/dist/ /usr/share/nginx/html/  
04. EXPOSE  5000
```

Запускаем контейнер

```
01. docker build --tag my-app .
```

```
02. docker run -p 5000:5000 --tag my-app
```

Демо



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node



Updated 25 minutes ago

10M+ 7.9K

Downloads Stars

Node.js is a JavaScript-based platform for server-side and networking applications.

Container

Linux

PowerPC 64 LE

x86-64

ARM 64

386

IBM Z

ARM

Application Infrastructure

Dockerfile для Node.js

```
01. FROM node:10-alpine  
02. WORKDIR /app  
03. COPY package*.json ./  
04. RUN npm ci  
05. COPY . .  
06. EXPOSE 5000  
07. CMD ["node", "server.js"]
```

OFFICIAL IMAGE 

python



Updated 24 minutes ago

10M+ 4.6K

Downloads Stars

Python is an interpreted, interactive, object-oriented, open-source programming language.

Container

Windows

Linux

x86-64

IBM Z

PowerPC 64 LE

ARM

386

ARM 64

Programming Languages

Dockerfile для Python

```
01. FROM python:3-alpine  
02. WORKDIR /usr/src/app  
03. COPY requirements.txt ./  
04. RUN pip install --no-cache-dir -r requirements.txt  
05. COPY . .  
06. EXPOSE 5000  
07. CMD ["python", "./your-daemon-or-script.py"]
```

Демо

Универсальная

абстракция

Компонуемость



C Docker (docker-compose.yml)

```
01. services:  
02.   api:  
03.     build: ./api  
04.   front:  
05.     build: ./front  
06.   reverse-proxy:  
07.     image: abiosoft/caddy  
08.     ports:  
09.       - 80:80  
10.     volumes:  
11.       - ./Caddyfile:/etc/Caddyfile
```

Запускаем связку контейнеров

```
$ docker-compose up
```

Демо

Виртуализирай



Спасибо!

- 🧑‍🤝‍🧑 Алексей Авдеев
- 🌐 <https://github.com/avdeev>
- 🌐 Neuron.Digital

