

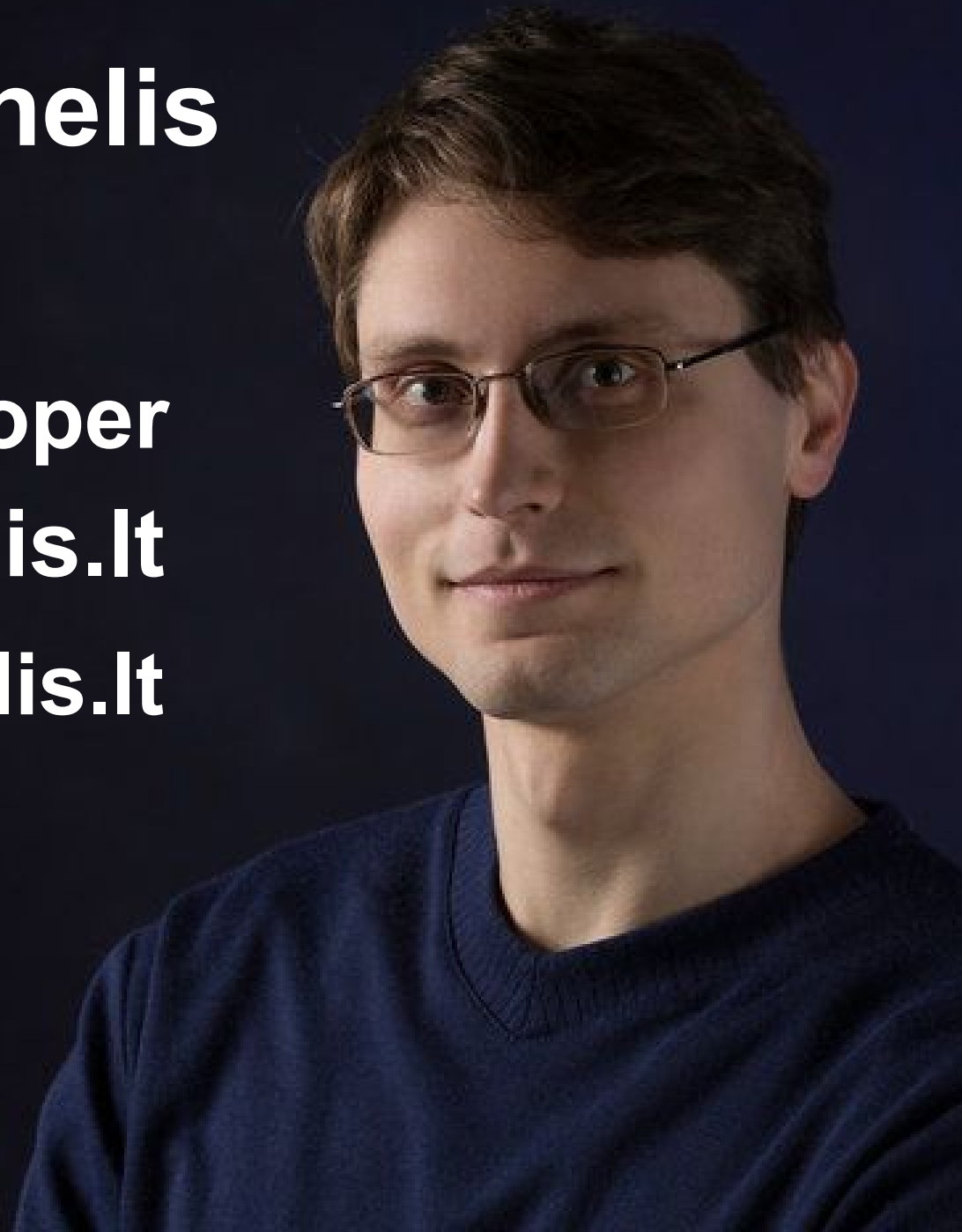
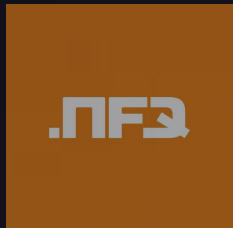
# Docker on VDS

Aurelijus Banelis



# Aurelijus Banelis

Software developer  
aurelijus.banelis.lt  
aurelijus@banelis.lt



# Docker on VDS

**You will learn**

**The docker**

**Why it is good**

**Why it is bad**




# **The docker**

**Why it is good**

**Why it is bad**

# Why docker?

**Wanted new technologies on my old Virtual Dedicated Server**

	<a href="#">CentOS 6</a> (64-bit)
	<a href="#">CentOS 7</a> (64-bit)
	<a href="#">Debian 7</a> (64-bit)

- ▼ etc
  - ▶ etc/auginte
  - ▼ httpd
    - ▼ httpd/conf.d
      - 💡 10-auginte-sites.conf
      - 💡 20-default-sites.conf
      - 💡 30-auginte-scala-site.conf
      - 💡 40-auginte-php-site.conf
  - ▶ rc.d
  - ▶ ssh
    - 📄 my.cnf
    - 📄 php.ini
  - ▶ home
  - ▶ opt
  - ▶ root
  - ▶ var
  - 📄 .gitignore

📄 README.md

## ⚡ HTTP/2 Test Verify HTTP/2.0 Support

Online **HTTP/2 test** - Verify if your server or CDN supports HTTP/2.

URL

HTTP/2 Test Result auginte.com

Yeah! auginte.com supports **HTTP/2.0**. Share via: [Twitter](#)




ALPN supported.

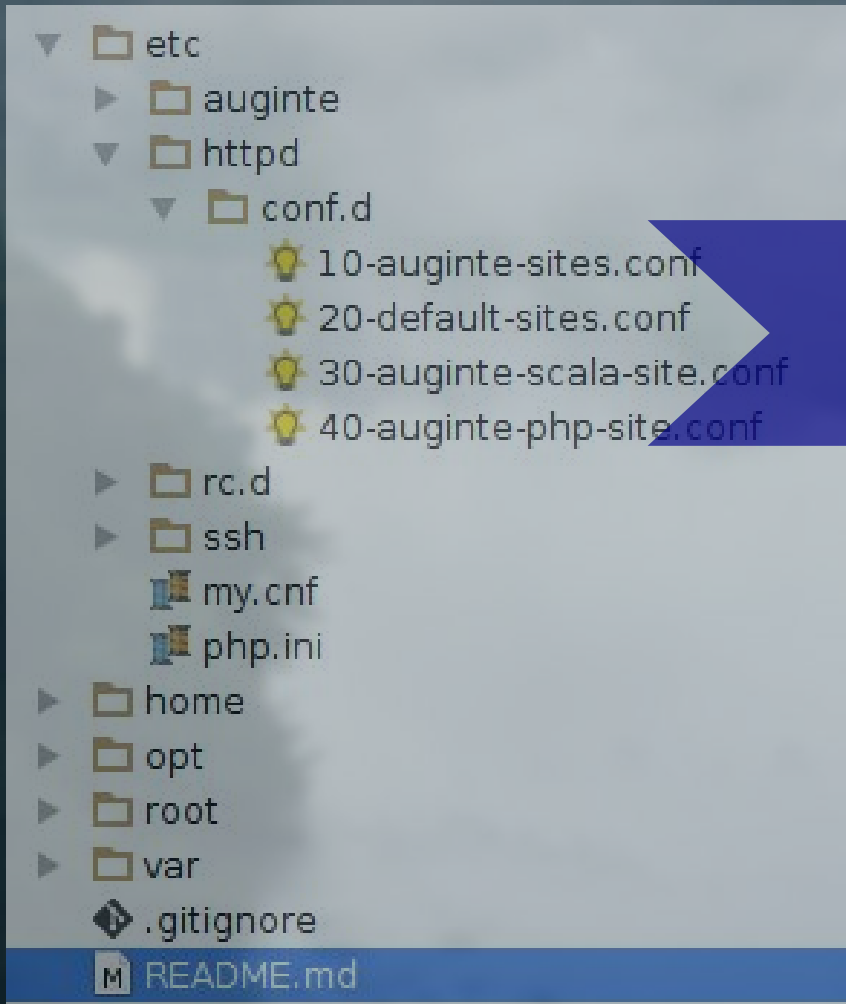
 `start-dev.sh`

 `start-live.sh`

 `start-stage.sh`



	<a href="#">CentOS 6</a> (64-bit)
	<a href="#">CentOS 7</a> (64-bit)
	<a href="#">Debian 7</a> (64-bit)



## ⚡ HTTP/2 Test Verify HTTP/2.0 Support

Online **HTTP/2 test** - Verify if your server or CDN supports HTTP/2.

URL

HTTP/2 Test Result [auginte.com](#)

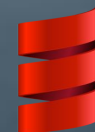
Yeah! [auginte.com](#) supports **HTTP/2.0**. Share via: [Twitter](#)

ALPN supported.

 `start-dev.sh`

 `start-live.sh`

 `start-stage.sh`





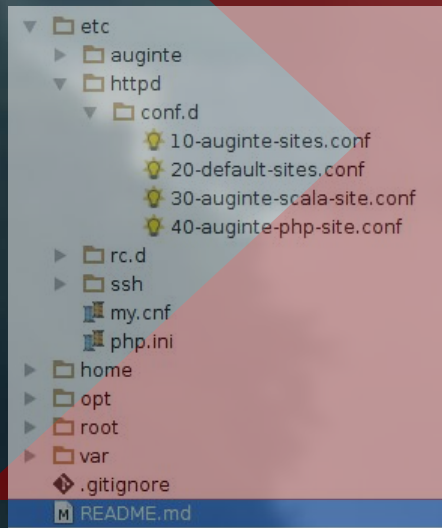
Markdown  
documentation



Very smart bash  
script



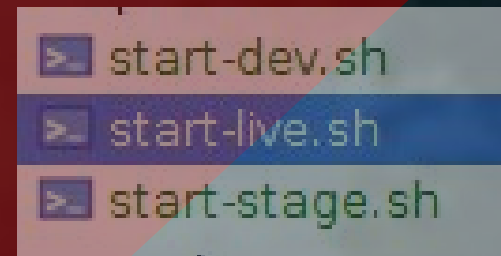
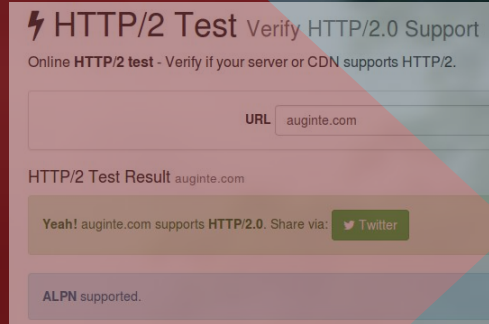
	<a href="#">CentOS 6</a> (64-bit)
	<a href="#">CentOS 7</a> (64-bit)
	<a href="#">Debian 7</a> (64-bit)



Provision with  
puppet



Provision with  
saltstack

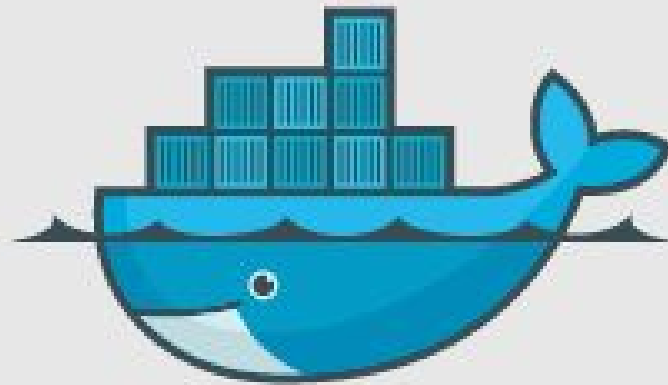


Markdown  
documentation

MD

<input type="radio"/>	<a href="#">CentOS 6 (64-bit)</a>
<input checked="" type="radio"/>	<a href="#">CentOS 7 (64-bit)</a>
<input type="radio"/>	<a href="#">Debian 7 (64-bit)</a>

```
▼ etc
  ► auginte
  ▼ httpd
    ▼ conf.d
      ⚡ 10-auginte-sites.conf
      ⚡ 20-default-sites.conf
      ⚡ 30-auginte-scala-site.conf
      ⚡ 40-auginte-php-site.conf
  ► rc.d
  ► ssh
  ► my.cnf
  ► php.ini
  ► home
  ► opt
  ► root
  ► var
  ► .gitignore
  ► README.md
```



# docker

## ⚡ HTTP/2 Test [Verify HTTP/2.0 Support](#)

Online **HTTP/2 test** - Verify if your server or CDN supports HTTP/2.

URL

HTTP/2 Test Result [auginte.com](#)

Yeah! auginte.com supports HTTP/2.0. Share via: [Twitter](#)

ALPN supported.

```
> start-dev.sh
```

```
> start-live.sh
```

```
> start-stage.sh
```

Provision with  
saltstack



puppet  
labs



# What is docker?

User-friendly containerization tools

# What is docker?

BUILD, SHIP, RUN

Docker is the world's leading software containerization platform

Source: <https://www.docker.com/>

# What is docker?

BUILD, SHIP, RUN

Docker is the world's leading software containerization platform

Source: <https://www.docker.com/>

# Containers...

# What is docker?

 vilniusphp / home

 Code

 Issues 

vilniusphp.lt home page



The screenshot shows the VilniusPHP 0x2E website. The header includes a logo and navigation links: Arėjantis, Pranešimai, Apie, and English. The main content area features a title "VilniusPHP 0x2E" and three article cards: "To Comment Or Not To Comment" by Povilas Sušinskas, "Docker on VDS" by Aurelijus Banelis, and "R^1: Rekursija kaip architektūrinio požiūrio problema" by Justas Bulkus. Below these is a section for "Trumpieji pranešimai" (Short messages) with a note that registration is not required. At the bottom, there are three sections: "Susitinkame" (We meet) with event details for 2016-09-01 19:00 at SMTP, "Diskusijos" (Discussions) with a note about the venue, and "Susitikimą remia" (The meeting is supported by) with the Build7 Stuff 15 logo.

VilniusPHP 0x2E

To Comment Or Not To Comment  
Povilas Sušinskas

Docker on VDS  
Kas yra Dockeris, kaip ant LIVE VDS'o, DEMO su įmantrybių pavyzdžiais ir kodėl Docker'io kartais nemėgstu  
Aurelijus Banelis

R^1: Rekursija kaip architektūrinio požiūrio problema  
Kokios problemos kyla ir kaip jas spręsti, kai architektas įsisuka į (tarinamai gražių) sprendimų ciklą  
Justas Bulkus

Trumpieji pranešimai  
Registracija nebūtina

Susitinkame  
2016-09-01 19:00  
SMTP  
J. Galvydžio g. 5, Vilnius  
UŽSIREGISTRUOK!

Diskusijos  
Po pranešimų  
"Alaus studija"  
S. Žukausko g. 20, Vilnius

Susitikimą remia  
Build7 Stuff 15  
SOFTWARE DEVELOPMENT CONFERENCE



# What is docker?

 vilniusphp / home

 Code

 Issues **0**

vilniusphp.it home page



The screenshot shows the VilniusPHP 0x2E website. The header includes a logo and navigation links: Arėjantis, Pranešimai, Apie, and English. The main content area features several articles: 'To Comment Or Not To Comment' by Povilas Sušinskas, 'Docker on VDS' by Aurelijus Banelis, and 'R^1: Rekursija kaip architektūrinio požiūrio problema' by Justas Bučkus. There is also a section for 'Trumpieji pranešimai' (Short messages) with a note that registration is required. The footer contains information about the event 'Susitinkame' (We meet) on 2016-09-01 at 19:00, a 'Diskusijos' (Discussions) section, and a 'Susitikimą remia' (Event supported by) logo for 'Build7 Stuff 15'.

PHP Fatal error: Cannot use 'String' as class name as it is reserved

# What is docker?

 vilniusphp / home

 Code

 Issues 0

vilniusphp.it home page



PHP Fatal error: Cannot use 'String' as class name as it is reserved

```
docker run -v "$PWD": "/src" -w "/src" \
php:5.6 bash -c "make build"
```

\*



# Docker on VDS

**What about  
production?**

Possible on some VDS, but mine used bad kernel

# One line to run

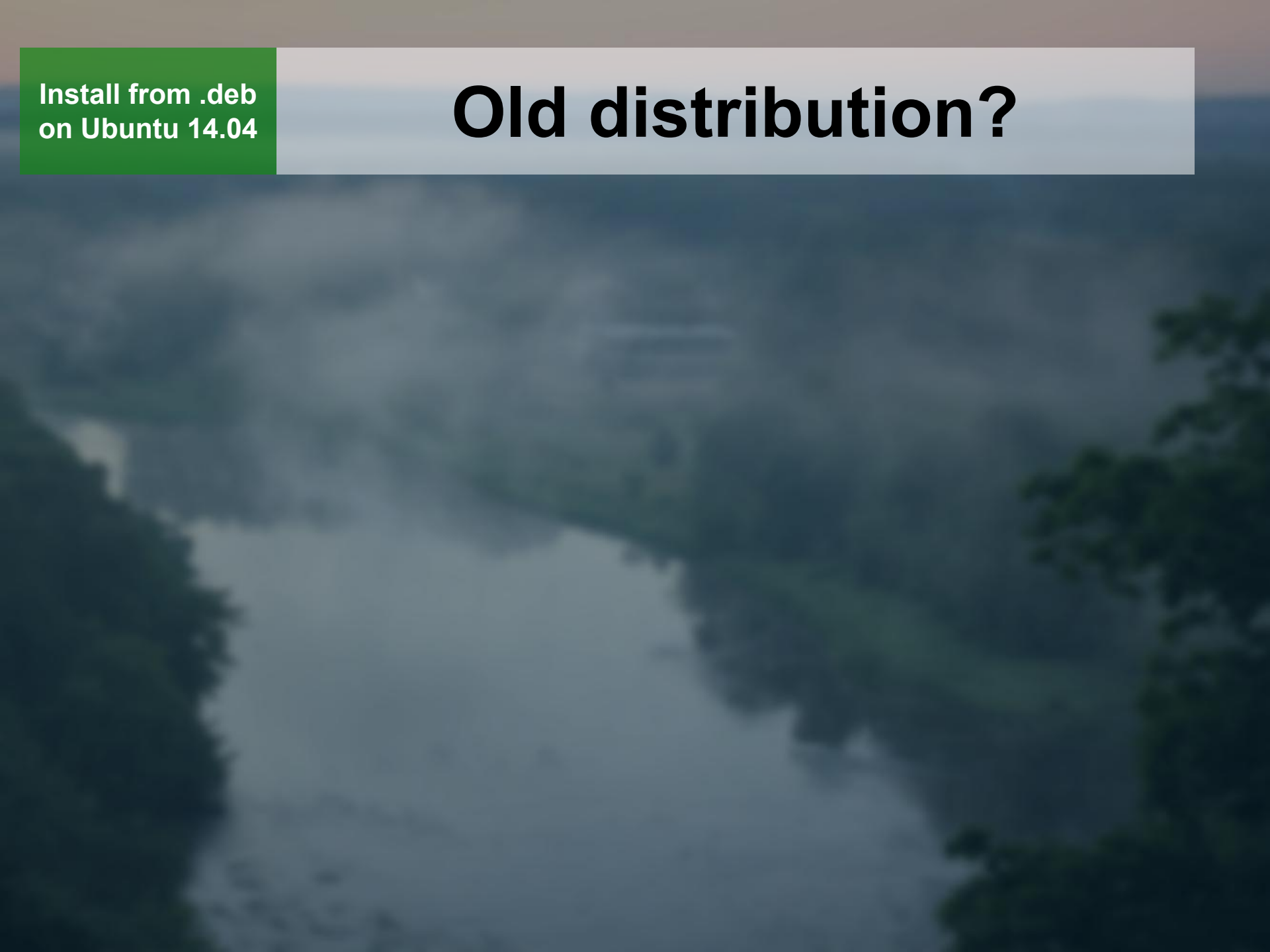
**docker-compose up**

## If docker is installed

\*Docker-compose is a docker wrapper, written in Python. There was less problems installing it, than docker itself

**Install from .deb  
on Ubuntu 14.04**

# Old distribution?



Install from .deb  
on Ubuntu 14.04

# Old distribution?

## Newest kernel



# OpenVZ

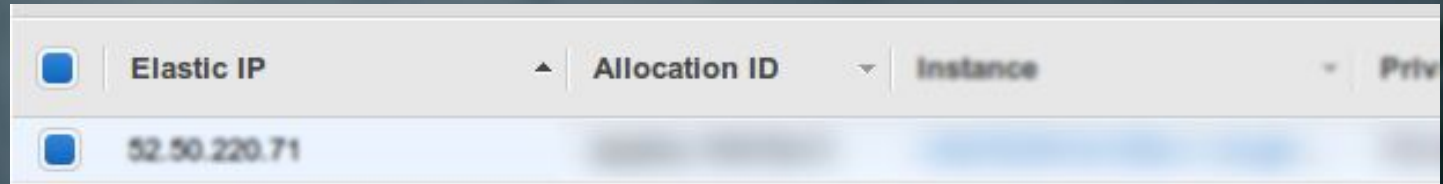
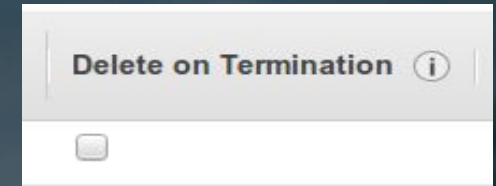
Your Linux kernel version 2.6.32-042stab113.12 can be unstable running docker.

## Please upgrade your kernel to 3.10.0.

# Ended up on AWS



# Ended up on AWS



Stable HDD

Static IP

Similar price

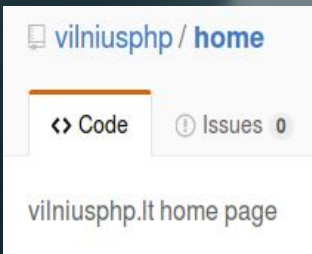
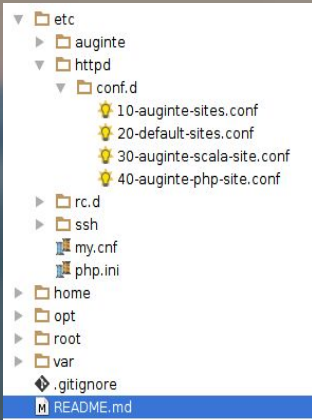
t2.nano

1-YEAR TERM					
Payment Option	Upfront	Monthly*	Effective Hourly**	Savings over On-Demand	On-Demand Hourly
No Upfront	\$0	\$3.65	\$0.005	29%	\$0.007 per Hour
Partial Upfront	\$28	\$1.17	\$0.005	31%	
All Upfront	\$41	\$0.00	\$0.005	33%	
3-YEAR TERM					
Payment Option	Upfront	Monthly*	Effective Hourly**	Savings over On-Demand	On-Demand Hourly
Partial Upfront	\$49	\$1.10	\$0.003	51%	\$0.007 per Hour
All Upfront	\$83	\$0.00	\$0.003	54%	

# The docker

Why it is good

Why it is bad





# **The docker**

## **Why it is good**

## **Why it is bad**



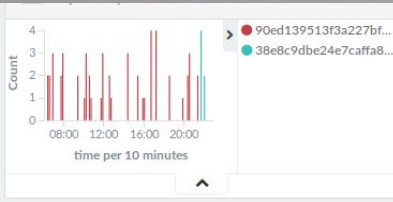
```
> start-dev.sh
> start-live.sh
> start-stage.sh
```

```
db => array (
  'hostname' => '${DB_HOST}',
  'username' => '${DB_USERNAME}',
  'password' => '${DB_PASSWORD}',
  'tablePrefix' => 'ip_',
  'database' => '${DB_NAME}',
  'charset' => 'utf8',
), // Database configuration
```

Name

2016-06-15T21-46-08v0.8.8-SNAPSHOT  
2016-06-24T20-57-52v0.8.8-SNAPSHOT

STATUS  
Restarting (1) 4 seconds ago  
Up 37 seconds  
Up 38 seconds  
Up 39 seconds



SSH test	Download logs	Import logs
14s	3min 32s	12min 30s
17s		
18min 21s		
11s	6min 31s	12min 30s

# DEMO

- One line to run/stop. Same on different environments
- Generate config from environment variables
- Auto-restart and output logs
- Mounting volumes instead of symlinks
- Include version into logs
- Advanced development environment (compiling, jenkins, log analysis)
- Read only file systems

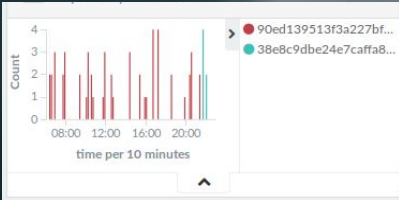
```
> start-dev.sh
> start-live.sh
> start-stage.sh
```

```
timezone => Europe/Vienna //
'db' => array (
  'hostname' => '${DB_HOST}',
  'username' => '${DB_USERNAME}',
  'password' => '${DB_PASSWORD}',
  'tablePrefix' => 'ip_',
  'database' => '${DB_NAME}',
  'charset' => 'utf8',
), // Database configuration
```

Name

```
2016-06-15T21-46-08v0.8.8-SNAPSHOT
2016-06-24T20-57-52v0.8.8-SNAPSHOT
```

```
STATUS
Restarting (1) 4 seconds ago
Up 37 seconds
Up 38 seconds
Up 39 seconds
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SSH test	Download logs	Import logs
14s	3min 32s	12min 30s
17s		
18min 21s		
11s	6min 31s	12min 30s

# The docker

## Why it is good

## Why it is bad

The background of the slide features a blurred image of a sky with soft, white clouds and the dark silhouettes of trees on the left and right sides. The overall tone is calm and atmospheric.

# **The docker**

## **Why it is good**

## **Why it is bad**

# Another layer to debug

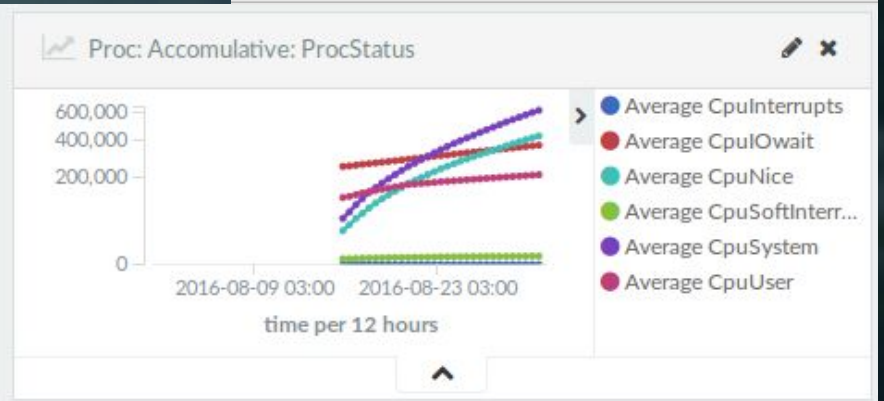
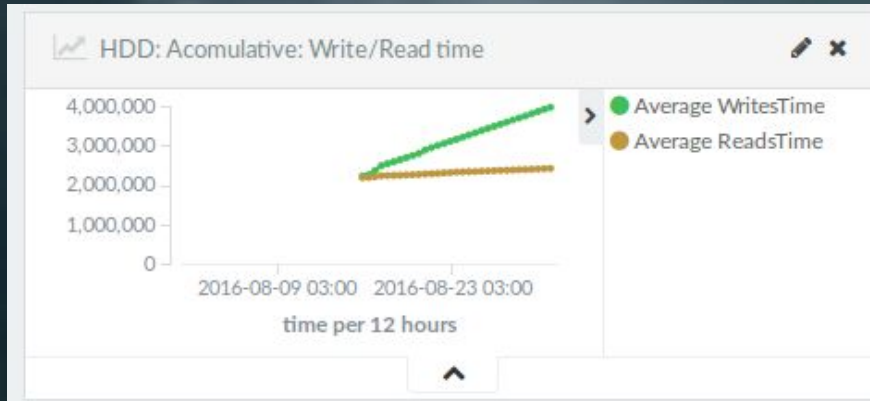
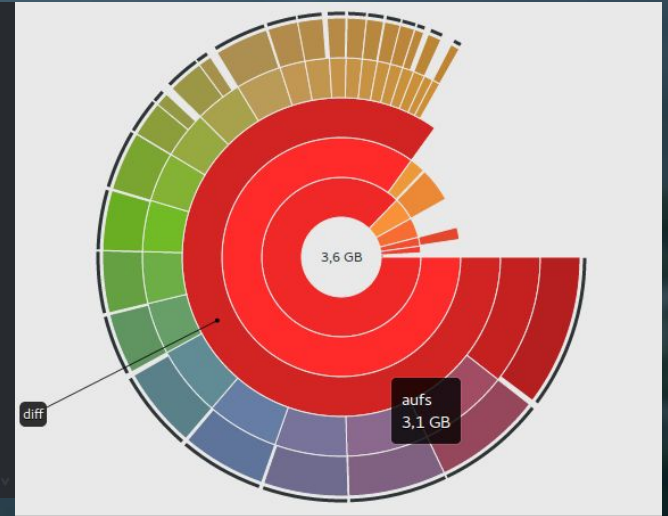
```
environment:  
- NGINX_HOST=foobar.com  
- NGINX_PORT=80  
command: /bin/bash -c "envsubst < /etc/nginx/conf.d/mysite.template > /etc/i
```

1/1 AnnotationException in AnnotationException.php line 193:

You have to enable opcache.load\_comments=1 or zend\_optimizerplus.load\_comments=1.

- envsubst and nginx \$fastcgi\_path\_info
- Digging the cause of the error
- Mysql just not starting (started working after version update)
- Slow “docker ps” when low of memory

# Needs tooling around



- Cache everything
- Most fast metrics are accumulative

# Reliability

```
Exited (0) 9 minutes ago
Up 6 seconds                9000/tcp
Exited (1) 43 seconds ago    2345/tcp, 0.0.0.0:32771->80/tcp
Exited (0) About a minute ago
```

- Linux vs Mac/Win native
- Orientdb repository renamed, old versions removed from docker hub
- Kernel panics
- Docker hub connection problems
- Security: Running 3rd party software with root
- Community split



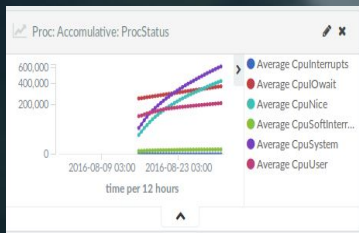
# The docker

## Why it is good

1/1

AnnotationException in Anno

You have to enable opcache.l



```
Exited (0) 9 minutes ago
Up 6 seconds
Exited (1) 43 seconds ago
Exited (0) About a minute
```

## Why it is bad

# Docker on VDS



That's it. Questions?

