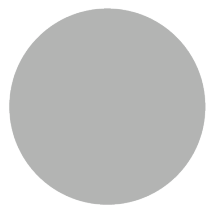


CoreOS Container Linux

Максим Залысин, DevOps Team Lead



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Профессиональная
конференция по DevOps



CoreOS

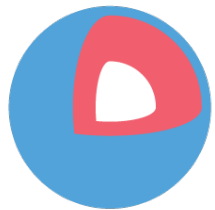


flannel

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Core OS



flannel

Clair



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flannel

etcd

Clair

Ignition

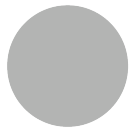
rkt

container linux

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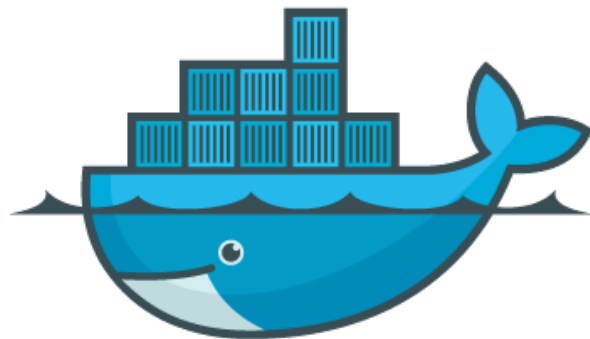
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docker



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Core OS

- Документация
- Docker
- systemd
- Ignition
- Обновление



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systemd

- .network
- .mount
- .automount
- .service
- .timer
- ...

systemd Utilities

systemctl journalctl notify analyze cglsgctop loginctl nspawn

systemd Daemons

systemd
journald networkd
logind user session

systemd Targets

bootmode basic multi-user graphical user-session
shutdown reboot dbus telephony user-session display service
dlog logind tizen service

systemd Core

manager unit login namespace log
systemd service timer mount target multiseat inhibit
snapshot path socket swap session pam cgroup dbus

systemd Libraries

dbus-1 libpam libcap libcryptsetup tcpwrapper libaudit libnotify

Linux Kernel

cgroups autofs kdbus



CoreOS

Release Channels

Stable

1855.4.0

The Stable channel should be used by production clusters. Versions of CoreOS Container Linux are battle-tested within the Beta and Alpha channels before being promoted.

kernel: 4.14.67
rkt: 1.30.0
docker: 18.06.1

[Release Notes](#) • [Browse Images](#)

Beta

1883.1.0

The Beta channel consists of promoted Alpha releases. Mix a few beta machines into your production clusters to catch any bugs specific to your hardware or configuration.

kernel: 4.14.69
rkt: 1.30.0
docker: 18.06.1

[Release Notes](#) • [Browse Images](#)

Alpha

1911.0.2

The Alpha channel closely tracks current development work and is released frequently. The newest versions of the Linux kernel, systemd, and other components will be available for testing.

kernel: 4.18.9
rkt: 1.30.0
docker: 18.06.1

[Release Notes](#) • [Browse Images](#)

Ignition config

```
{"ignition":{"config":{},"security":{"tls":{},"timeouts":{},"version":"2.2.0"},"networkd":
{"units":[{"contents":"[Match]\nName=eth0\n[Network]\nAddress=...\nDNS=...
\n","name":"eth0.network"}]},"passwd":{"users":
[{"name":"core","sshAuthorizedKeys":["ecdsa-sha2-nistp256 ..."]]}}, "storage":{"files":
[{"filesystem":"root","path":"/etc/hostname","contents":
{"source":"data:;HOSTNAME","verification":{},"mode":420},
{"filesystem":"root","path":"/etc/coreos/update.conf","contents":
{"source":"data:;GROUP%3Dstable%0AREBOOT_STRATEGY%3D%22off%22","verificati
on":{},"mode":420}]},"links":[{"filesystem":"root","path":"/etc/systemd/network/99-
default.link","target":"/dev/null"}]},"systemd":{"units":[{"dropins":[{"contents":"...
\n","name":"10-docker-opts.conf"}],"name":"docker.service"}]}}
```

Container Linux Config

```
storage:
  links:
    - path: /etc/systemd/network/99-default.link
      target: /dev/null
  files:
    - path: /etc/hostname
      filesystem: root
      contents:
        inline: HOSTNAME
    - path: /etc/coreos/update.conf
      contents:
        inline: |-
          GROUP=stable
          REBOOT_STRATEGY="off"
systemd:
  units:
    - name: docker.service
      dropins:
        - name: 10-docker-opts.conf
          contents: |
            ...
networkd:
  units:
    - name: eth0.network
      contents: |
        [Match]
        Name=eth0
        [Network]
        ...
passwd:
  users:
    - name: core
      ssh_authorized_keys:
        - ecdsa-sha2-nistp256 ...
```



Container Linux Config

```
storage:
  links:
    - path: /etc/systemd/network/99-default.link
      target: /dev/null
  files:
    - path: /etc/hostname
      filesystem: root
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        - name: 10-docker-opts.conf
          contents: |
            ...
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  units:
    - name: eth0.network
      contents: |
        [Match]
        Name=eth0
        [Network]
        ...
passwd:
  users:
    - name: core
      ssh_authorized_keys:
        - ecdsa-sha2-nistp256 ...
```



Deployment

Container
Linux
Config

Deployment

Container
Linux
Config

YAML

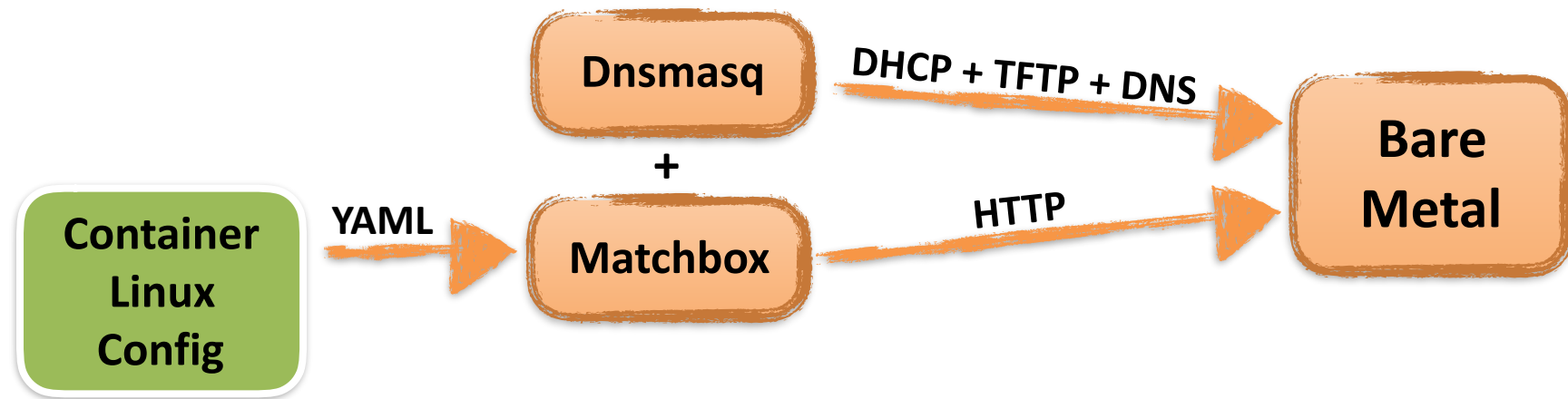


Dnsmasq

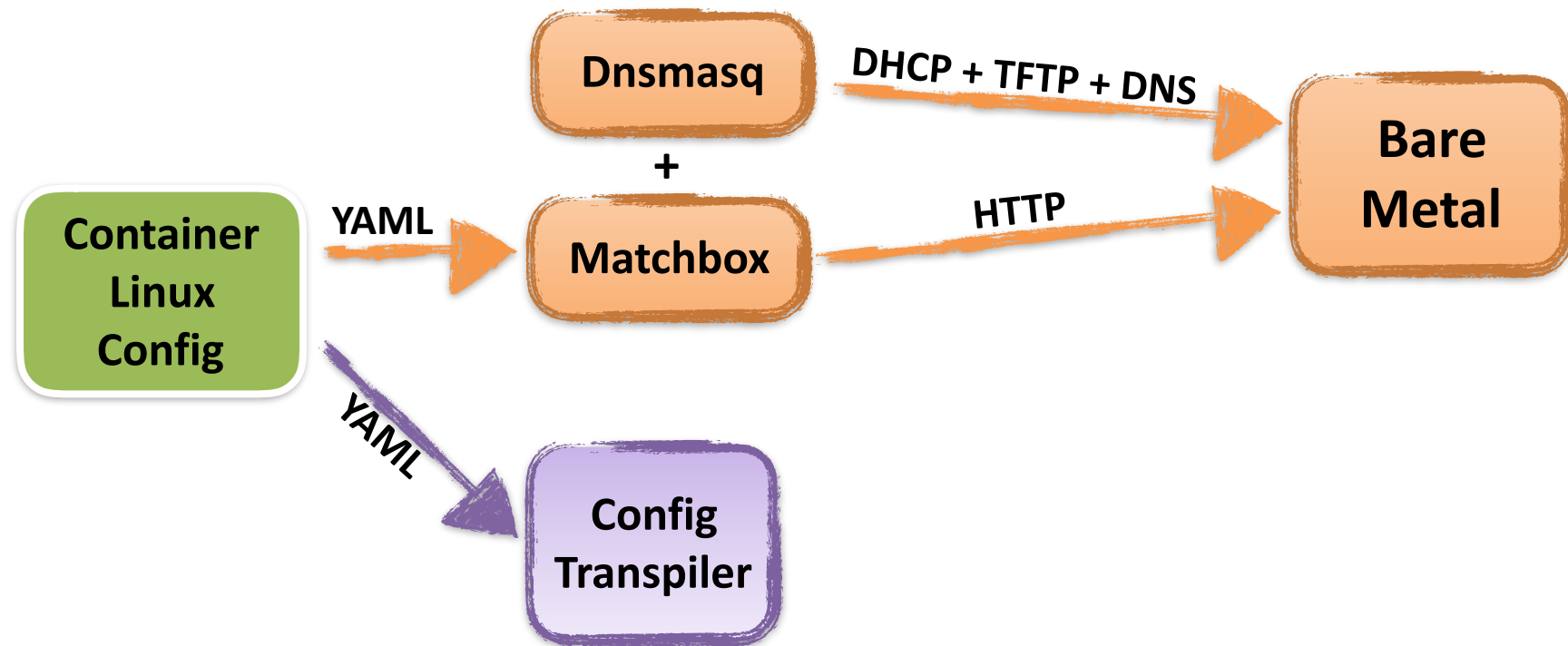
+

Matchbox

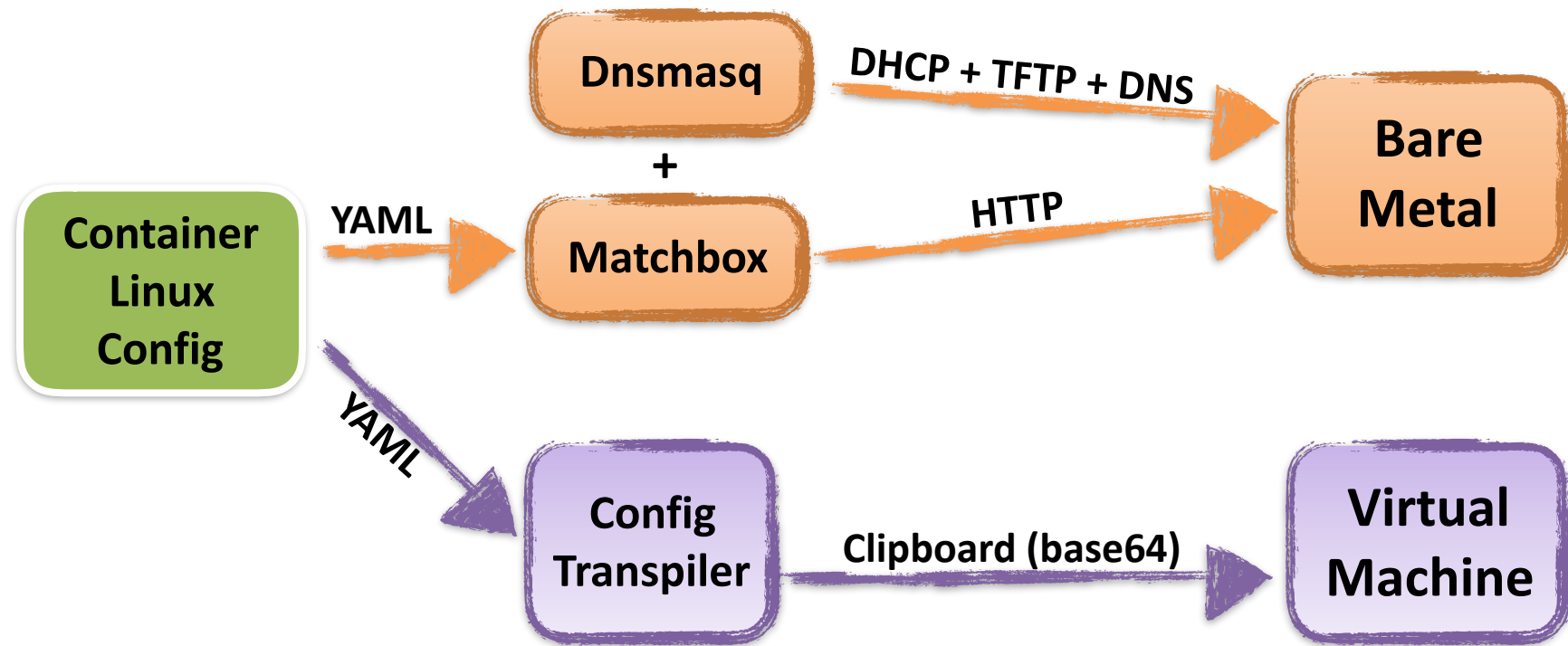
Deployment



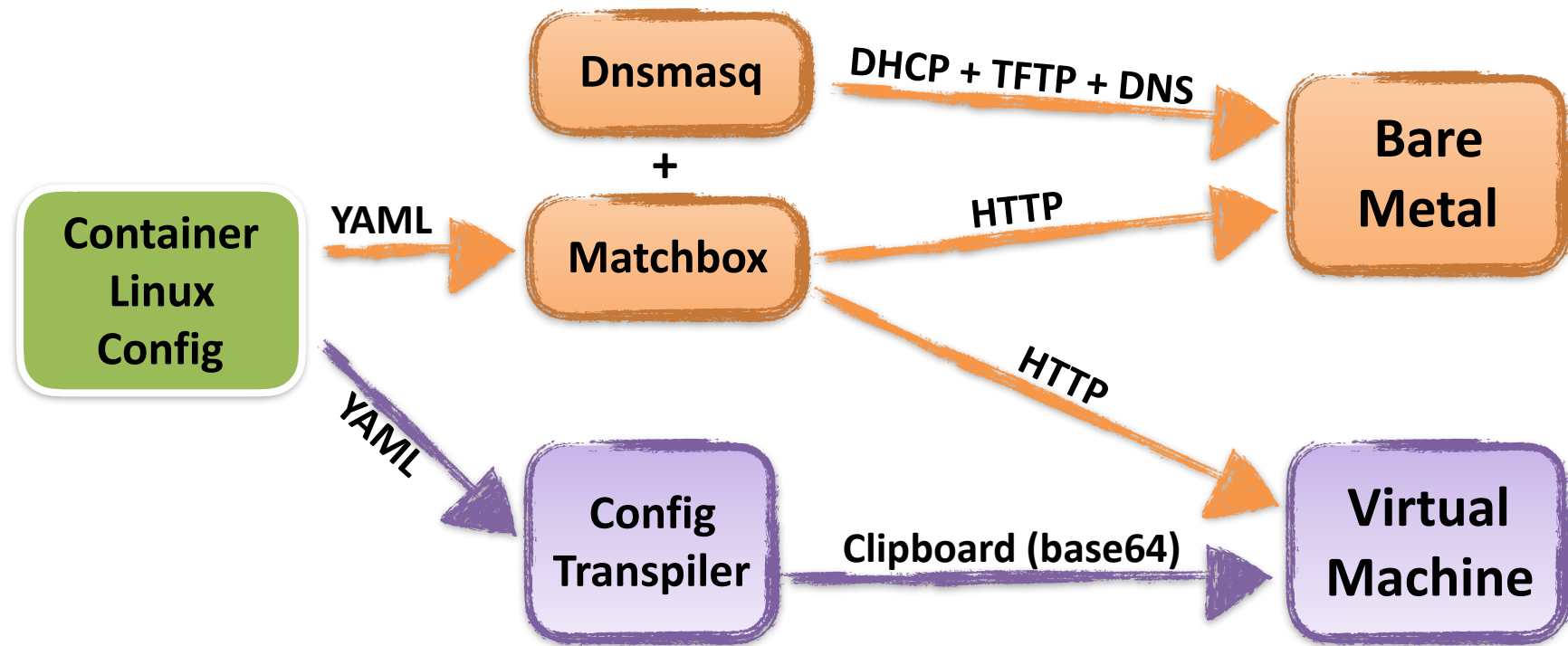
Deployment



Deployment

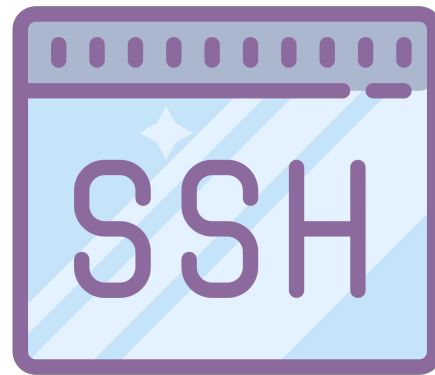


Deployment





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```
---
- hosts: all
  become: yes
  gather_facts: no
  vars:
    ansible_python_interpreter: python
  tasks:
    - name: Check Python is installed
      raw: python --version
      register: python_version
      ignore_errors: yes
    - name: Install "PyPy v6.0.0 Portable" as "Python 2.7" in "/opt/pypy"
      when: python_version is failed
      raw: |
        mkdir -p /opt/bin && \
        curl -sSL https://.../pypy-6.0.0-linux_x86_64-portable.tar.bz2 | tar xjf - -C /opt && \
        mv -f /opt/pypy-6.0.0-linux_x86_64-portable /opt/pypy && \
        ln -snf /opt/pypy/bin/pypy /opt/bin/python
...

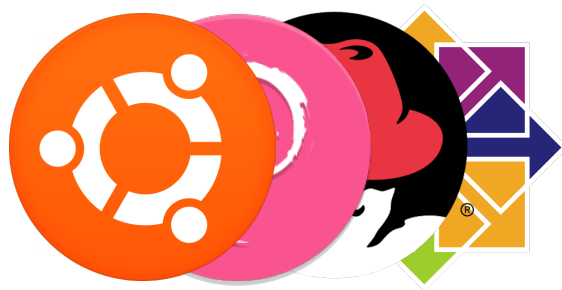
```

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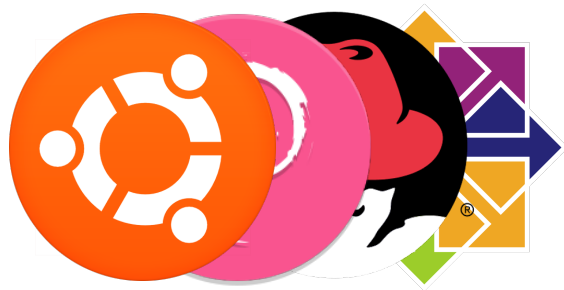
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Обновление



1. Подтягивание информации о доступных обновлениях
2. Ожидание установки новых версий ядра и пакетов
3. Разрешение конфликтов
4. Перезагрузка
5. Ожидание установки новых пакетов

Обновление



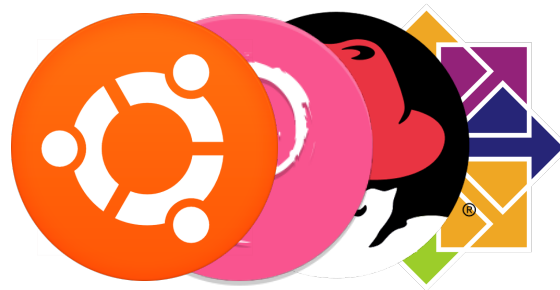
1. Подтягивание информации о доступных обновлениях
2. Ожидание установки новых версий ядра и пакетов
3. Разрешение конфликтов
4. Перезагрузка
5. Ожидание установки новых пакетов



1. Проверка наличия обновления
2.  **ReBoot**

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Откат

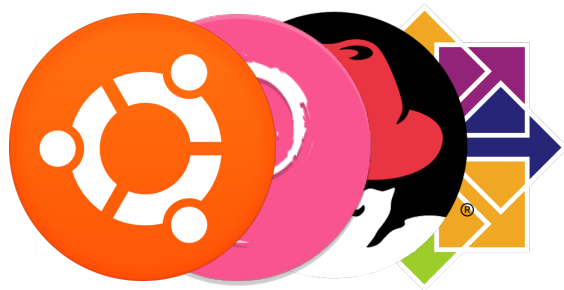


1. ...

2. ...

3.

Откат



1. ...

2. ...

3.



1. `cgpt prioritize "$(cgpt find -t coreos-usr |
grep --invert-match "$(rootdev -s /usr)")"`

2.  **ReBoot**

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Почему? Зачем?

- Docker & systemd
- Upgrade = Reboot
- Deployment
- Security
- Kernel



Вопросы?

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m.zalysin@devinotele.com

