

```
mkdir ~/.kube
```

```
cp ~/.kube/config ~/.kube/config-backup
```

```
curl https://k8s-workshop-december.storage.googleapis.com/config-x > ~/.kube/config
```

```
kubectl get nodes
```



# Kubernetes workshop

Киев @ Декабрь, 2019



**Меня зовут Женя**  
**@gmile**

The screenshot shows the homepage of the eZdorovya website, which is part of the eHealth system in Ukraine. The page features a large blue header with the text '#eZdorovya' and a background graphic of a network of interconnected nodes. A prominent yellow and blue diagonal stripe runs across the right side of the page. The main content area includes text about the administrator of the central database and a call-to-action button.

#eZdorovya

Адміністратор  
Центральної бази даних  
eHealth України

Відповідаємо за цифрову трансформацію системи охорони  
здоров'я України

eZdorovya (знак для товарів та послуг, який належить ДП 'Електронне здоров'я')

ДЕТАЛЬНІШЕ

Цілі eZdorovya

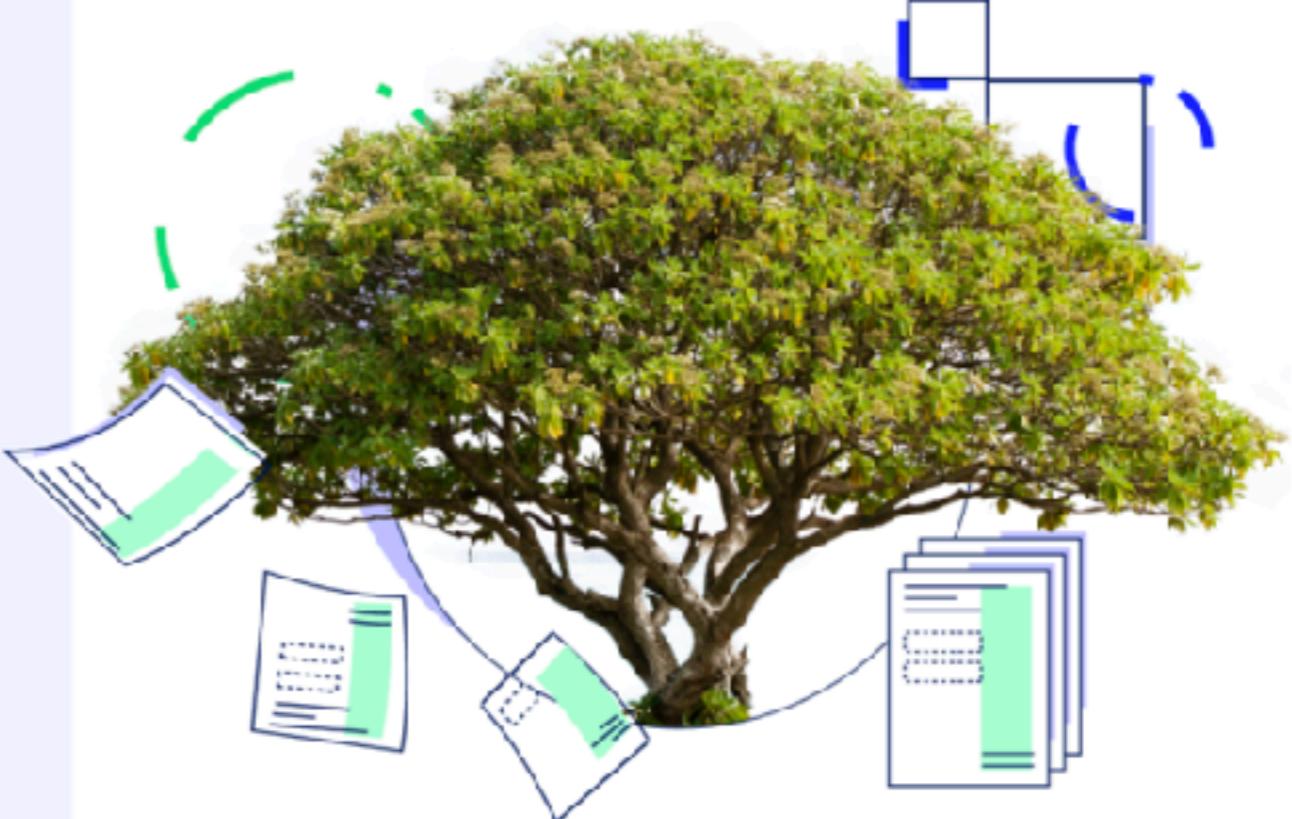
Contractbook: Efficient Contr X +

← → C 🔒 contractbook.co

Contractbook How it works Solutions Resources Pricing Book a meeting EN DA Login

# A greener Contractbook!

We commit to planting a tree for every 100th digital signature on the platform. Spread the word to support the reforestation of Earth.



 Open My Documents

Learn more about the project



Transparent Compliant Efficient

**Прежде  
чем начать...**

**Работаем  
с 10:30 до 15:30**

**4 часа  
новой информации  
– это не легко**

**Будут кофебрейки!**

**Будет обед!**

**Будет много лайвкодинга –  
ошибки неизбежны!**

**Могут быть  
технические неполадки!**

**Этот воршоп:  
микс из лекции,  
семинара и тренинга**

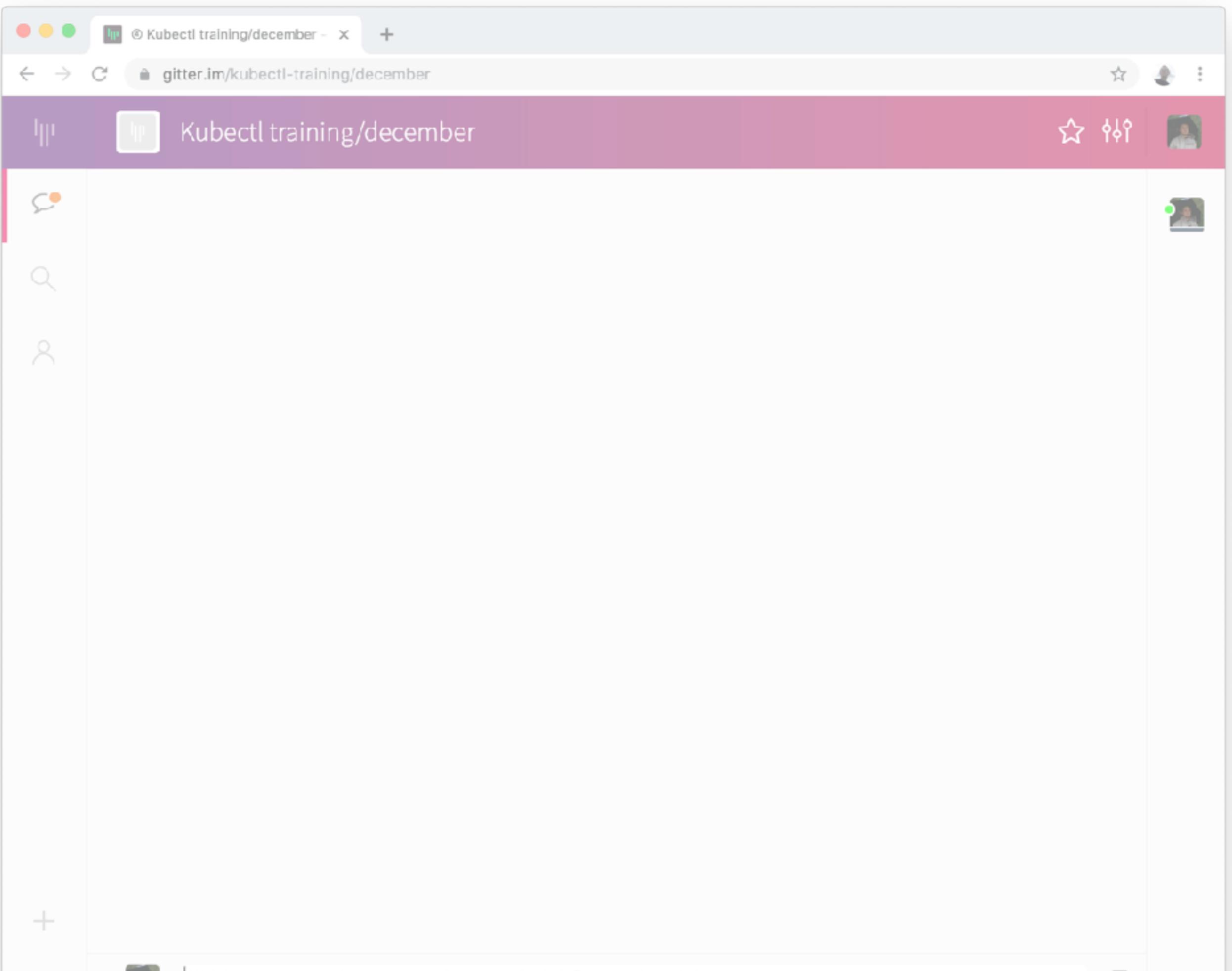
**Задавайте  
вопросы!**

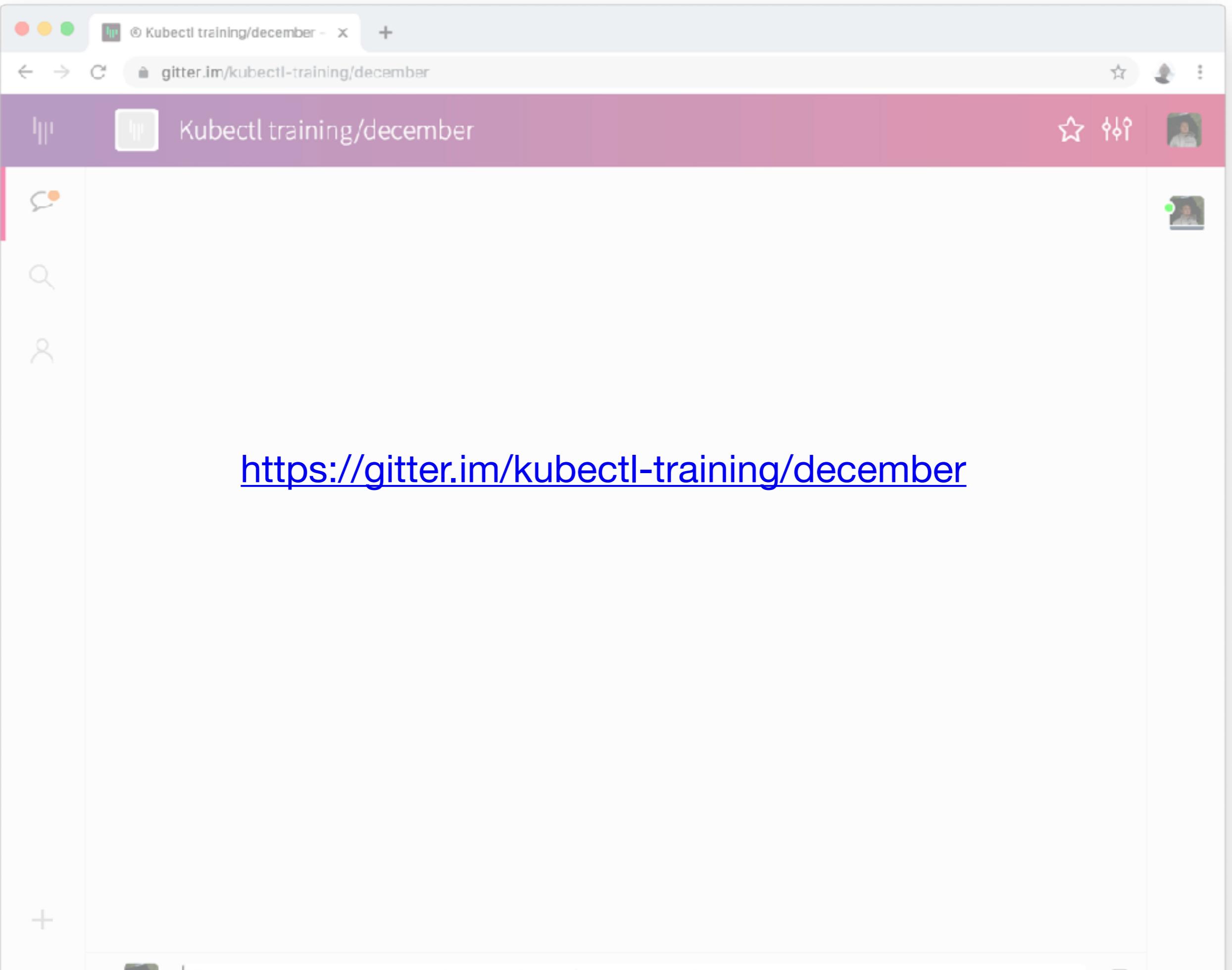
**Перебивать меня  
можно и нужно!**

**Упражнения делать  
не обязательно!**

**Делайте упражнения  
в git репозитории!**

**Будет много упрощений**



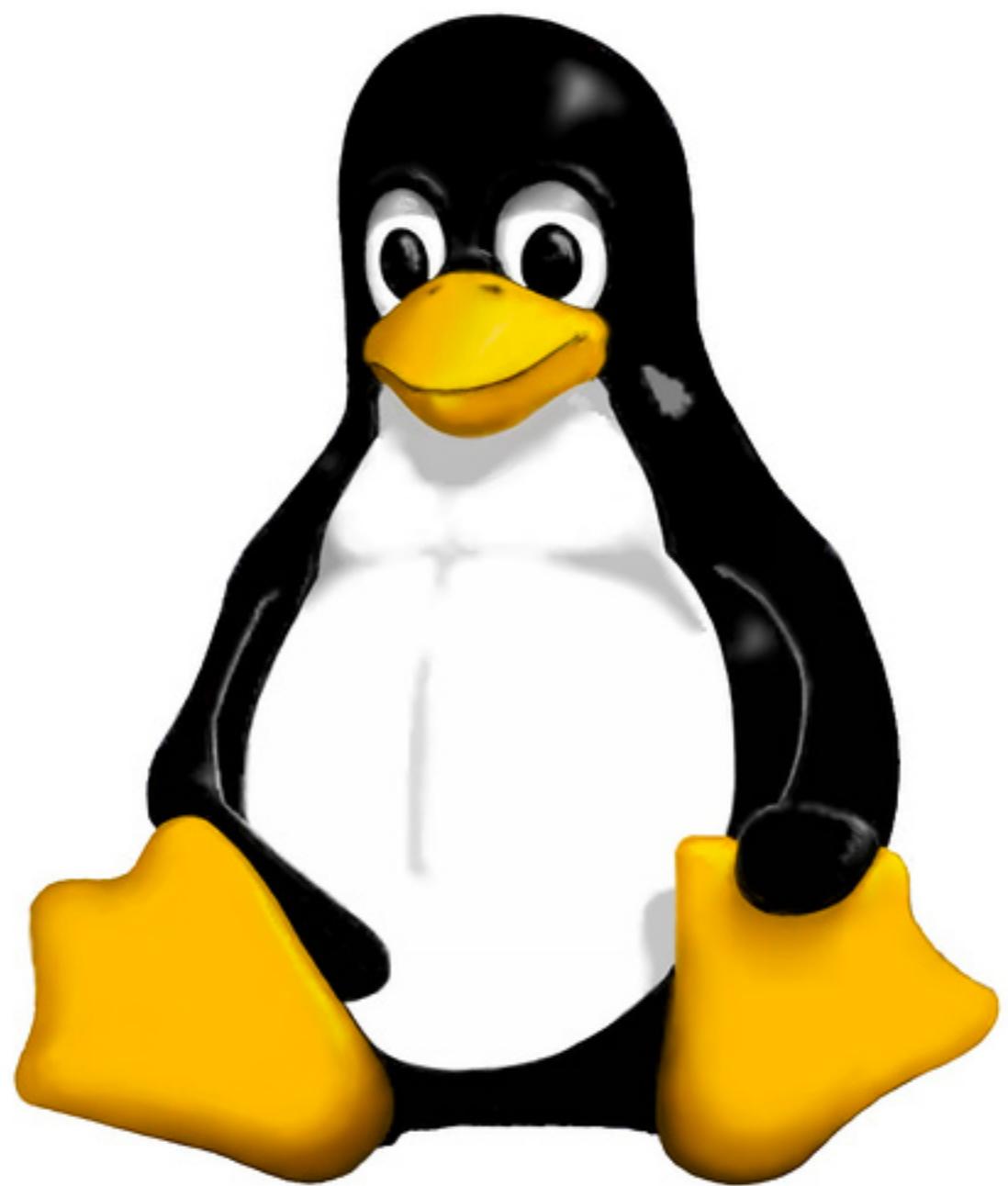


<https://gitter.im/kubectl-training/december>

# **Порядок работы:**

- 1. Постановка задачи**
- 2. Демо / Практика**

# **1. Quick intro to containers**



**A long time ago in a galaxy far,  
far away...**

The Container Revolution: Reflections After the First Decade

youtube.com/watch?v=xxWaECK9XqM&feature=youtu.be&t=95

Premium UA

Search

Joyent

- Containers are not a new idea, having originated via filesystem containers with chroot in Seventh Edition Unix
- chroot originated with Bill Joy, but specifics are blurry; according to Kirk McKusick, via Poul-Henning Kamp and Robert Watson:

[CHROOT]

Dr. Marshall Kirk Mckusick, private communication: “According to the SCCS logs, the chroot call was added by Bill Joy on March 18, 1982 approximately 1.5 years before 4.2BSD was released. That was well before we had ftp servers of any sort (ftp did not show up in the source tree until January 1983). My best guess as to its purpose was to allow Bill to chroot into the /4.2BSD build directory and build a system using only the files, include files, etc contained in that tree. That was the only use of chroot that I remember from the early days.”

1:35 / 44:03

CC HD

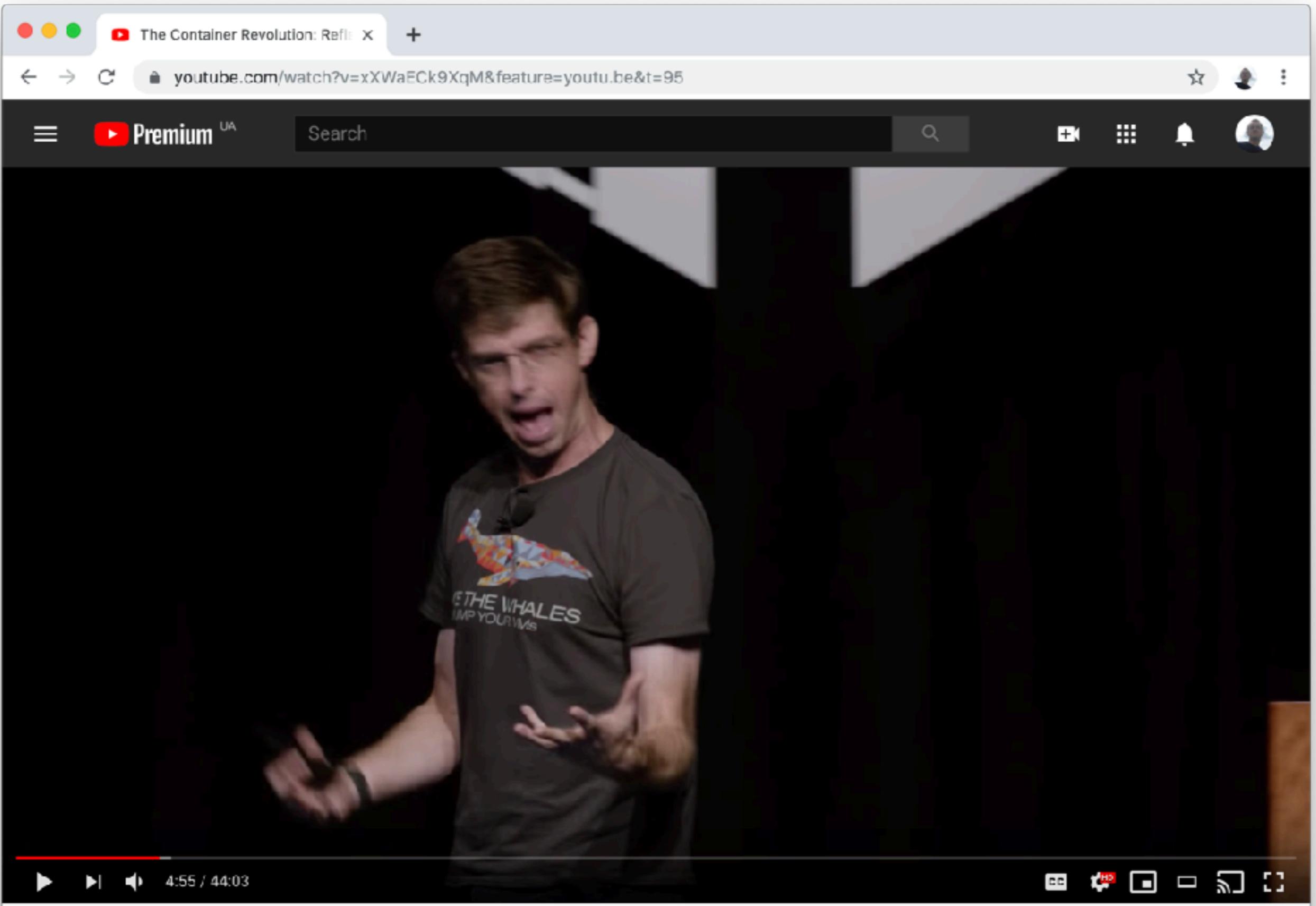
The Container Revolution: Reflections After the First Decade

22,405 views · Sep 18, 2016

LIKE DISLIKE SHARE SAVE

Up next

GOTO 2017 • Debugging Under Fire: Keep your... GOTO Conferences



## The Container Revolution: Reflections After the First Decade

22,405 views · Sep 18, 2016

LIKE

DISLIKE

SHARE

SAVE

...

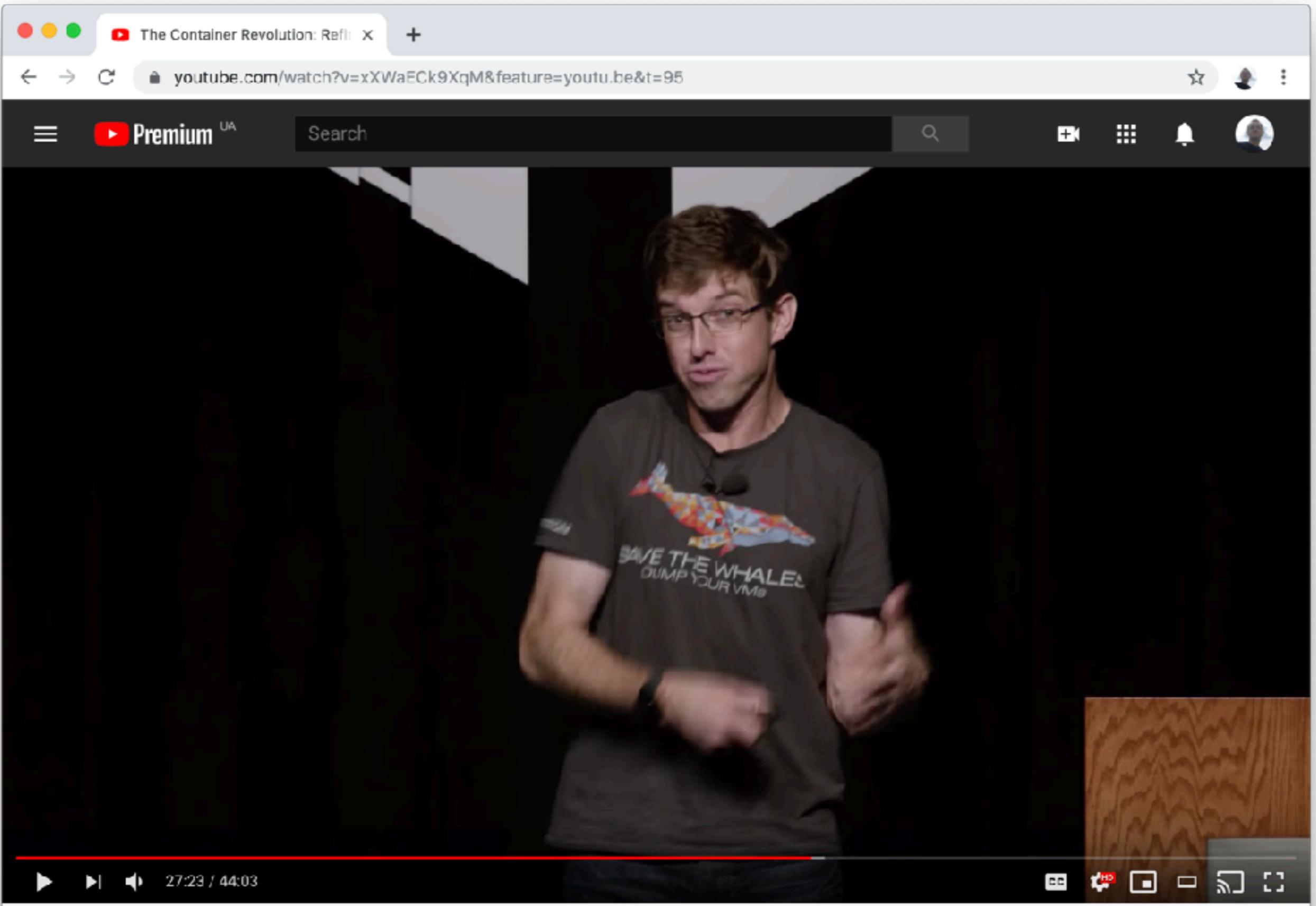
## Up next



GOTO 2017 • Debugging  
Under Fire: Keep your...

GOTO Conferences

AUTOPLAY



## The Container Revolution: Reflections After the First Decade

22,405 views · Sep 18, 2016

LIKE

DISLIKE

SHARE

SAVE

...

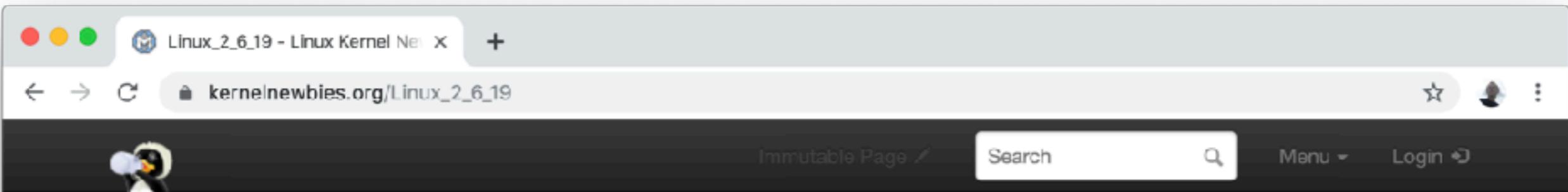
## Up next



GOTO 2017 • Debugging  
Under Fire: Keep your...

GOTO Conferences

AUTOPLAY



## KernelNewbies : Linux\_2\_6\_19

Last updated at 2017-12-30 01:30:02

Released 29 November, 2006 ([full SCM git log](#))

### Contents

1. Short overview (for news sites, etc)
2. Important things (AKA: "the cool stuff")
  1. GFS2
  2. EXT 4
  3. ECRYPTFS
  4. Libata/PATA (Parallel ATA) merge
  5. Removal of selected OSS drivers
  6. AVR32 Architecture
  7. Sleepable RCU (Read Copy Update)
  8. Configurable block layer
  9. Tracking maximum allowable latency for power saving
  10. Some new drivers
3. Other stuff
  1. Arch-independent changes in the kernel core
  2. Architecture-specific changes
  3. Filesystems
  4. SELinux
  5. Networking
  6. Crypto
  7. CPUFREQ
  8. Drivers and other subsystems
    1. Video
    2. USB
    3. Input devices
    4. Sound
    5. libata/IDE
    6. V4L/DVB
    7. Network drivers
    8. SCSI drivers
    9. Hardware monitoring drivers
    10. Various drivers

Kernel Hacking

[Frontpage](#)

[Kernel Hacking](#)

[Kernel Documentation](#)

[Kernel Glossary](#)

[FAQ](#)

[Found a bug?](#)

[Kernel Changelog](#)

[Upstream Merge Guide](#)

Projects

[KernelJanitors](#)

[KernelMentors](#)

[KernelProjects](#)

Community

[Why a community?](#)

[Regional Kernelnewbies](#)

[Personal Pages](#)

[Upcoming Events](#)

References

[Mailing Lists](#)

[Related Sites](#)

[Programming Links](#)

Wiki

Linux\_2\_6\_19 - Linux Kernel News +

kernelnewbies.org/Linux\_2\_6\_19

Immutable Page Search Menu Login



component requires memory to be located on a certain node ([commit](#), [commit](#), and user in `sys_move_pages()` for not allowing fallbacks to another nodes ([commit](#)) and in the profiling code ([commit](#))

- Zoned counters: Support NR\_SLAB\_RECLAMABLE / NR\_SLAB\_UNRECLAMABLE ([commit](#)); add per-zone writeout counter ([commit](#))
- Introduce an architecture-independent mechanism for registering active regions of memory. The big benefit of this set of patches is a sizable reduction of architecture-specific code, some of which is very hairy. In this release x86, x86-64, ia64 and power platforms are ported to use this generic code ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#))
- Add vectored AIO support. To read more about this see [this LWN article](#) and [this other](#) ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#))
- Directed yield: `cpu_relax` variants for spinlocks and rw-locks. On systems running with virtual cpus there is optimization potential in regard to spinlocks and rw-locks. If the virtual cpu that has taken a lock is known to a cpu that wants to acquire the same lock it is beneficial to yield the timeslice of the virtual cpu in favour of the cpu that has the lock (directed yield) ([commit](#)), ([commit](#)), ([commit](#))
- Allow file systems to differentiate between data and meta reads, so that the kernel can use this information for making more intelligent priority decisions and for blktrace ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#))
- Software suspend updates: Add a swsusp debugging mode ([commit](#)), add write-speed instrumentation ([commit](#)) and read-speed instrumentation to see what bandwidth we're achieving ([commit](#)); implement async read for faster swsusp resuming ([commit](#)), switch the swsusp writeout code from 4k-at-a-time to 4MB-at-a-time for faster suspending ([commit](#)); introduce memory bitmaps for more efficient memory usage ([commit](#)), ([commit](#)), suspend infrastructure cleanup and extension ([commit](#))
- namespaces one of the building blocks of containers ([commit 1](#), [2](#), [3](#), [4](#), [5](#), [6](#), [7](#), [8](#), [9](#), [10](#), [11](#), [12](#), [13](#), [14](#), [15](#), [16](#), [17](#), [18](#), [19](#), [20](#), [21](#))
- PCI-Express AER (Advanced Error Reporting) support ([commit](#)), ([commit](#))
- IRQ handling infrastructure: Maintain a per-CPU global "struct pt\_regs \*\*" variable instead of passing regs around manually through all ~1800 interrupt handlers in the Linux kernel ([LWN article](#)) ([commit](#))
- csa: basic accounting over taskstats ([commit](#)), ([commit](#)), ([commit](#)), ([commit](#))
- Other stuff
  - Add the `pm_trace` attribute in `/sys/power` which has to be explicitly set to one to really enable the "PM tracing" code compiled in when `CONFIG_PM_TRACE` is set (which modifies the machine's CMOS clock in unpredictable ways) ([commit](#))
  - Make it possible to disable console suspending (`CONFIG_DISABLE_CONSOLE_SUSPEND`) ([commit](#))
  - Driver core: create devices/virtual/ tree ([commit](#))
  - Kbuild infrastructure: Add a new 'make headers\_install\_all' target ([commit](#)) and add a 'V=2 make' environment option, which prints why a target is rebuilt during the compile ([commit](#))

Linux\_2\_6\_19 - Linux Kernel News +

kernelnewbies.org/Linux\_2\_6\_19

Immutable Page Search Menu Login

A penguin icon is located in the top-left corner.

component requires memory to be located on a certain node ([commit](#))[, \(commit\)](#), and use it in [sys\\_move\\_pages\(\)](#) for not allowing fallbacks to another nodes ([commit](#)) [and in the profiling code \(\[commit\]\(#\)\)\[.\]\(#\)](#)

- Zoned counters: Support NR\_SLAB\_RECLAMABLE / NR\_SLAB\_UNRECLAMABLE ([commit](#))[; add per-zone writeout counter \(\[commit\]\(#\)\)\[.\]\(#\)](#)
- Introduce an architecture-independent mechanism for registering active regions of memory. The big benefit of this set of patches is a sizable reduction of architecture-specific code, some of which is very hairy. In this release x86, x86-64, ia64 and power platforms are ported to use this generic code ([commit](#))[, \(\[commit\]\(#\)\)\[, \\(\\[commit\\]\\(#\\)\\)\\[, \\\(\\\[commit\\\]\\\(#\\\)\\\)\\\[, \\\\(\\\\[commit\\\\]\\\\(#\\\\)\\\\)\\\\[, \\\\\(\\\\\[commit\\\\\]\\\\\(#\\\\\)\\\\\)\\\\\[, \\\\\\(\\\\\\[commit\\\\\\]\\\\\\(#\\\\\\)\\\\\\)\\\\\\[, \\\\\\\(\\\\\\\[commit\\\\\\\]\\\\\\\(#\\\\\\\)\\\\\\\)\\\\\\\[,\\\\\\\]\\\\\\\(#\\\\\\\)\\\\\\]\\\\\\(#\\\\\\)\\\\\]\\\\\(#\\\\\)\\\\]\\\\(#\\\\)\\\]\\\(#\\\)\\]\\(#\\)\]\(#\)](#)
- Add vectored AIO support. To read more about this see [this LWN article](#) [and this other](#) [\(\[commit\]\(#\)\)\[, \\(\\[commit\\]\\(#\\)\\)\\[, \\\(\\\[commit\\\]\\\(#\\\)\\\)\\\[, \\\\(\\\\[commit\\\\]\\\\(#\\\\)\\\\)\\\\[.\\\\]\\\\(#\\\\)\\\]\\\(#\\\)\\]\\(#\\)\]\(#\)](#)
- Directed yield: `cpu_relax` variants for spinlocks and rw-locks. On systems running with virtual cpus there is optimization potential in regard to spinlocks and rw-locks. If the virtual cpu that has taken a lock is known to a cpu that wants to acquire the same lock it is beneficial to yield the timeslice of the virtual cpu in favour of the cpu that has the lock (directed yield) ([commit](#))[, \(\[commit\]\(#\)\)\[, \\(\\[commit\\]\\(#\\)\\)\\[.\\]\\(#\\)\]\(#\)](#)
- Allow file systems to differentiate between data and meta reads, so that the kernel can use this information for making more intelligent priority decisions and for blktrace ([commit](#))[, \(\[commit\]\(#\)\)\[, \\(\\[commit\\]\\(#\\)\\)\\[, \\\(\\\[commit\\\]\\\(#\\\)\\\)\\\[.\\\]\\\(#\\\)\\]\\(#\\)\]\(#\)](#)
- Software suspend updates: Add a swsusp debugging mode ([commit](#))[, add write-speed instrumentation \(\[commit\]\(#\)\) \[and read-speed instrumentation to see what bandwidth we're achieving \\(\\[commit\\]\\(#\\)\\)\\[; implement aasync read for faster swsusp resuming \\\(\\\[commit\\\]\\\(#\\\)\\\)\\\[, switch the swsusp writeout code from 4k-at-a-time to 4MB-at-a-time for faster suspending \\\\(\\\\[commit\\\\]\\\\(#\\\\)\\\\)\\\\[; introduce memory bitmaps for more efficient memory usage \\\\\(\\\\\[commit\\\\\]\\\\\(#\\\\\)\\\\\)\\\\\[, \\\\\\(\\\\\\[commit\\\\\\]\\\\\\(#\\\\\\)\\\\\\)\\\\\\[, suspend infrastructure cleanup and extension \\\\\\\(\\\\\\\[commit\\\\\\\]\\\\\\\(#\\\\\\\)\\\\\\\)\\\\\\\[.\\\\\\\]\\\\\\\(#\\\\\\\)\\\\\\]\\\\\\(#\\\\\\)\\\\\]\\\\\(#\\\\\)\\\\]\\\\(#\\\\)\\\]\\\(#\\\)\\]\\(#\\)\]\(#\)](#)
- namespaces one of the building blocks of containers ([commit 1](#)[, 2](#)[, 3](#)[, 4](#)[, 5](#)[, 6](#)[, 7](#)[, 8](#)[, 9](#)[,](#) **10**[, 11](#)[, 12](#)[, 13](#)[, 14](#)[, 15](#)[, 16](#)[, 17](#)[, 18](#)[, 19](#)[, 20](#)[, 21](#)[.](#)
- PCI-Express AER (Advanced Error Reporting) support ([commit](#))[, \(\[commit\]\(#\)\)\[.\]\(#\)](#)
- IRQ handling infrastructure: Maintain a per-CPU global "struct pt\_regs \*\*" variable instead of passing regs around manually through all ~1800 interrupt handlers in the Linux kernel ([LWN article](#)) [\(\[commit\]\(#\)\)\[.\]\(#\)](#)
- csa: basic accounting over taskstats ([commit](#))[, \(\[commit\]\(#\)\)\[, \\(\\[commit\\]\\(#\\)\\)\\[, \\\(\\\[commit\\\]\\\(#\\\)\\\)\\\[.\\\]\\\(#\\\)\\]\\(#\\)\]\(#\)](#)
- Other stuff
  - Add the `pm_trace` attribute in `/sys/power` which has to be explicitly set to one to really enable the "PM tracing" code compiled in when `CONFIG_PM_TRACE` is set (which modifies the machine's CMOS clock in unpredictable ways) ([commit](#))[.](#)
  - Make it possible to disable console suspending (`CONFIG_DISABLE_CONSOLE_SUSPEND`) ([commit](#))[.](#)
  - Driver core: create devices/virtual/ tree ([commit](#))[.](#)
  - Kbuild infrastructure: Add a new 'make headers\_install\_all' target ([commit](#)) [and add a 'V=2 make' environment option, which prints why a target is rebuilt during the compile \(\[commit\]\(#\)\)\[.\]\(#\)](#)

A screenshot of a web browser window displaying the KernelNewbies.org website. The title bar shows the page is titled "Linux\_2\_6\_24 - Linux Kernel Newbie". The address bar contains the URL "kernelnewbies.org/Linux\_2\_6\_24". The main content area features a Tux the Penguin logo, the heading "KernelNewbies : Linux\_2\_6\_24", and the text "Last updated at 2017-12-30 01:29:55". Below this, there is a summary of changes: "Spam: Ulrich Drepper, the libc maintainer, has published a must-read paper [about "What every programmer should know about memory"](#)". It also mentions "Linux kernel version 2.6.24 Released 24 January 2008 ([full SCM git log](#))". A sidebar on the left lists various navigation links under categories like "Kernel Hacking", "Projects", "Community", and "References".

## Kernel Hacking

- [Frontpage](#)
- [Kernel Hacking](#)
- [Kernel Documentation](#)
- [Kernel Glossary](#)
- [FAQ](#)
- [Found a bug?](#)
- [Kernel Changelog](#)
- [Upstream Merge Guide](#)

## Projects

- [KernelJanitors](#)
- [KernelMentors](#)
- [KernelProjects](#)

## Community

- [Why a community?](#)
- [Regional Kernelnewbies](#)
- [Personal Pages](#)
- [Upcoming Events](#)

## References

- [Mailing Lists](#)
- [Related Sites](#)
- [Programming Links](#)

## Wiki

Immutable Page

Search



Menu

Login



## KernelNewbies : Linux\_2\_6\_24

Last updated at 2017-12-30 01:29:55

Spam: Ulrich Drepper, the libc maintainer, has published a [must-read paper](#) about "What every programmer should know about memory"

Linux kernel version 2.6.24 Released 24 January 2008 ([full SCM git log](#))

### Contents

1. Short overview (for news sites, etc)
2. Important things (AKA: "the cool stuff")
  1. CFS improvements
  2. Tickless support for x86-64, PPC, UML, ARM, MIPS
  3. New wireless drivers and configuration interface
  4. Anti-fragmentation patches
  5. SPI/SDIO support in the MMC layer
  6. USB authorization
  7. Per-device dirty memory thresholds
  8. PID and network namespaces
  9. Large Receive Offload (LRO) support for TCP traffic
  10. Task Control Groups
  11. Linux Kernel Markers
  12. x86-32/64 arch reunification
  13. New drivers
3. Subsystems
  1. Memory management
  2. Various
  3. Networking
  4. Filesystems
  5. CRYPTO
  6. SELinux
  7. KVM
  8. DM
  9. Audit
4. Drivers
  1. Buses
  2. Graphics
  3. SATA/IDE
  4. Networking
  5. Sound

A screenshot of a web browser window titled "Linux\_2\_6\_24 - Linux Kernel Newbies". The URL in the address bar is "kernelnewbies.org/Linux\_2\_6\_24#PID\_and\_network\_namespaces". The page content includes a Tux logo, a search bar, and navigation links for "Immutable Page", "Search", "Menu", and "Login".

## 2.10. Task Control Groups

There have been various proposals in the Linux arena for resource management/accounting and other task grouping subsystems in the kernel (Resgroups, User Beancounters, NSProxy cgroups, and others). Task Control Groups is the framework that is getting merged in 2.6.24 to fulfill the functionality that lead to the creation of such proposals. TCG can track and group processes into arbitrary "cgroups" and assign arbitrary state to those groups, in order to control its behaviour. The intention is that other subsystems hook into the generic cgroup support to provide new attributes for cgroups, such as accounting/limiting the resources which processes in a cgroup can access.

For example, cpusets (see Documentation/cpusets.txt) allows you to associate a set of CPUs and a set of memory nodes with the tasks in each cgroup. The CFS group scheduling feature uses cgroups to control the CPU time that every cgroup can get. Other various resource management and virtualization/cgroup efforts can become task cgroup clients. The configuration interface is described in Documentation/cgroups.txt

## 2.11. Linux Kernel Markers

You can read [this recommended article](#) about the "Linux Kernel Markers" feature.

The Linux Kernel Markers implement static probing points for the Linux kernel. Dynamic probing system like kprobes/dtrace can put probes pretty much anywhere. However, the scripts that dynamic probing points use can become quickly outdated, because a small change in the kernel may trigger a rewrite of the script, which needs to be maintained and updated separately, and will not work for all kernel versions. That's why static probing points are useful, since they can be put directly into the kernel source code and hence they are always in sync with the kernel development. Static probing points apparently can also have some performance advantages. They've no performance costs when they're not being used.

The kernel markers are a sort of "derivative" of the long-time external patchset "Linux Trace Toolkit" (LTT), which is a feature that has been around since [1999](#). The Kernel Markers are a feature needed for the [SystemTap](#) project. In this release, there are no probing points being included, but many will be certainly included in the future, and some tracking tools like blktrace will probably be ported to this kind of infrastructure in the future.

Linux\_2\_6\_24 - Linux Kernel Newbies

kernelnewbies.org/Linux\_2\_6\_24#PID\_and\_network\_namespaces

Immutable Page Search Menu Login

## 2.10. Task Control Groups

There have been various proposals in the Linux arena for resource management/accounting and other task grouping subsystems in the kernel (Resgroups, User Beancounters, NSProxy cgroups, and others). Task Control Groups is the framework that is getting merged in 2.6.24 to fulfill the functionality that lead to the creation of such proposals. TCG can track and group processes into arbitrary "cgroups" and assign arbitrary state to those groups, in order to control its behaviour. The intention is that other subsystems hook into the generic cgroup support to provide new attributes for cgroups, such as accounting/limiting the resources which processes in a cgroup can access.

For example, cpusets (see Documentation/cpusets.txt) allows you to associate a set of CPUs and a set of memory nodes with the tasks in each cgroup. The CFS group scheduling feature uses cgroups to control the CPU time that every cgroup can get. Other various resource management and virtualization/cgroup efforts can become task cgroup clients. The configuration interface is described in Documentation/cgroups.txt

## 2.11. Linux Kernel Markers

You can read [this recommended article](#) about the "Linux Kernel Markers" feature.

The Linux Kernel Markers implement static probing points for the Linux kernel. Dynamic probing system like kprobes/dtrace can put probes pretty much anywhere. However, the scripts that dynamic probing points use can become quickly outdated, because a small change in the kernel may trigger a rewrite of the script, which needs to be maintained and updated separately, and will not work for all kernel versions. That's why static probing points are useful, since they can be put directly into the kernel source code and hence they are always in sync with the kernel development. Static probing points apparently can also have some performance advantages. They've no performance costs when they're not being used.

The kernel markers are a sort of "derivative" of the long-time external patchset "Linux Trace Toolkit" (LTT), which is a feature that has been around since [1999](#). The Kernel Markers are a feature needed for the [SystemTap](#) project. In this release, there are no probing points being included, but many will be certainly included in the future, and some tracking tools like blktrace will probably be ported to this kind of infrastructure in the future.

cgroups - Wikipedia

en.wikipedia.org/wiki/Cgroups

Not logged in Talk Contributions Create account Log in

Article Talk Read Edit View history Search Wikipedia



WIKIPEDIA  
The Free Encyclopedia

Main page  
Contents  
Featured content  
Current events  
Random article  
Donate to Wikipedia  
Wikipedia store  
  
Interaction  
Help  
About Wikipedia  
Community portal  
Recent changes  
Contact page  
  
Tools  
What links here  
Related changes  
Upload file  
Special pages  
Permanent link  
Page information  
Wikidata item  
Cite this page  
  
Print/export  
Create a book  
Download as PDF  
Printable version  
  
Languages

# cgroups

From Wikipedia, the free encyclopedia

**cgroups** (abbreviated from **control groups**) is a [Linux kernel](#) feature that limits, accounts for, and isolates the [resource usage](#) (CPU, memory, disk I/O, network, etc.) of a collection of [processes](#).

Engineers at Google (primarily [Paul Menage](#) and [Rohit Seth](#)) started the work on this feature in 2006 under the name "process containers".<sup>[1]</sup> In late 2007, the nomenclature changed to "control groups" to avoid confusion caused by multiple meanings of the term "[container](#)" in the Linux kernel context, and the control groups functionality was merged into the [Linux kernel mainline](#) in kernel version 2.6.24, which was released in January 2008.<sup>[2]</sup> Since then, developers have added many new features and controllers, such as support for [kernfs](#) in 2014,<sup>[3]</sup> [firewalling](#),<sup>[4]</sup> and unified hierarchy.<sup>[5]</sup>

**cgroups**

<b>Original author(s)</b>	Paul Menage, Rohit Seth
<b>Developer(s)</b>	<a href="#">kernel.org</a> (Tejun Heo et al.) and <a href="#">freedesktop.org</a>
<b>Initial release</b>	2007; 12 years ago
<b>Written in</b>	C
<b>Operating system</b>	Linux
<b>Type</b>	System software
<b>License</b>	GPL and LGPL
<b>Website</b>	<a href="#">www.kernel.org/doc/Documentation/cgroup-v1</a> <a href="#">/cgroup-v1.txt</a> for v1 and <a href="#">www.kernel.org/doc/Documentation/cgroup-v2.txt</a> for v2

Contents [hide]

- 1 Versions
- 2 Features
- 3 Use
- 4 Redesign
  - 4.1 Namespace isolation
  - 4.2 Unified hierarchy
  - 4.3 Kernel memory control groups (kmemcg)
  - 4.4 cgroup awareness of OOM killer
- 5 Adoption
- 6 See also
- 7 References
- 8 External links

Versions [edit]

Linux namespaces - Wikipedia

en.wikipedia.org/wiki/Linux\_namespaces

Not logged in Talk Contributions Create account Log in

Article Talk Read Edit View history Search Wikipedia



WIKIPEDIA  
The Free Encyclopedia

Main page  
Contents  
Featured content  
Current events  
Random article  
Donate to Wikipedia  
Wikipedia store

Interaction

Help  
About Wikipedia

Community portal  
Recent changes  
Contact page

Tools

What links here  
Related changes

Upload file  
Special pages

Permanent link  
Page information

Wikidata item  
Cite this page

Print/export

Create a book  
Download as PDF  
Printable version

Languages

# Linux namespaces

From Wikipedia, the free encyclopedia

*For namespaces in general, see [Namespace](#).*

This article has multiple issues. Please help [improve it](#) or discuss these issues [\[hide\]](#)

on the [talk page](#). ([Learn how and when to remove these template messages](#))

- This article needs additional citations for verification. ([March 2016](#))
- This article includes a list of references, but its sources remain unclear because it has insufficient inline citations. ([March 2016](#))
- This article's tone or style may not reflect the encyclopedic tone used on Wikipedia. ([May 2016](#))

Namespaces are a feature of the [Linux kernel](#) that partitions kernel resources such that one set of processes sees one set of resources while another set of processes sees a different set of resources. The feature works by having the same namespace for a set of resources and processes, but those namespaces refer to distinct resources. Resources may exist in multiple spaces. Examples of such resources are process IDs, hostnames, user IDs, file names, and some names associated with network access, and [interprocess communication](#). Namespaces are a fundamental aspect of [containers](#) on Linux.

The term "namespace" is often used for a type of namespace (e.g. process ID) as well for a particular space of names.

A Linux system starts out with a single namespace of each type, used by all processes. Processes can create additional namespaces and join different namespaces.

## Namespaces

Original author(s)	Al Viro
Developer(s)	Eric W. Biederman, Pavel Emelyanov, Al Viro, Cyril Gorcunov et al.
Initial release	2002; 17 years ago
Written in	C
Operating system	Linux
Type	System software
License	GPL and LGPL

## Contents [hide]

- 1 History
- 2 Namespace kinds
  - 2.1 Mount (mnt)
  - 2.2 Process ID (pid)



## Namespace kinds [edit]

Since kernel version 4.10, there are 7 kinds of namespaces. Namespace functionality is the same across all kinds: each process is associated with a namespace and can only see or use the resources associated with that namespace, and descendant namespaces where applicable. This way each process (or process group thereof) can have a unique view on the resources. Which resource is isolated depends on the kind of namespace that has been created for a given process group.

### Mount (mnt) [edit]

Mount namespaces control mount points. Upon creation the mounts from the current mount namespace are copied to the new namespace, but mount points created afterwards do not propagate between namespaces (using shared subtrees, it is possible to propagate mount points between namespaces<sup>[4]</sup>).

The clone flag used to create a new namespace of this type is CLONE\_NEWNS - short for "NEW NameSpace". This term is not descriptive (as it doesn't tell which kind of namespace is to be created) because mount namespaces were the first kind of namespace and designers did not anticipate there being any others.

### Process ID (pid) [edit]

The PID namespace provides processes with an independent set of process IDs (PIDs) from other namespaces. PID namespaces are nested, meaning when a new process is created it will have a PID for each namespace from its current namespace up to the initial PID namespace. Hence the initial PID namespace is able to see all processes, albeit with different PIDs than other namespaces will see processes with.

The first process created in a PID namespace is assigned the process id number 1 and receives most of the same special treatment as the normal init process, most notably that [orphaned processes](#) within the namespace are attached to it. This also means that the termination of this PID 1 process will immediately terminate all processes in its PID namespace and any descendants.<sup>[5]</sup>

### Network (net) [edit]

Network namespaces virtualize the network stack. On creation a network namespace contains only a loopback interface.

Each network interface (physical or virtual) is present in exactly 1 namespace and can be moved between namespaces.

Each namespace will have a private set of IP addresses, its own routing table, socket listing, connection tracking table, firewall, and other network-related resources.

Destroying a network namespace destroys any virtual interfaces within it and moves any physical interfaces within it back to the initial network namespace.

### Interprocess Communication (ipc) [edit]

**cgroups**  
limit how much you can use

**namespaces**  
limit what you can see

LXC/LXC - Linux Containers

github.com/lxc/lxc

Search or jump to... / Pull requests Issues Marketplace Explore

lxc / lxc Watch 215 Unstar 2.8k Fork 832

Code Issues 192 Pull requests 5 Security Insights

LXC - Linux Containers <https://linuxcontainers.org/lxc>

c lxc containers

8,715 commits 8 branches 109 releases 310 contributors LGPL-2.1

Branch: master New pull request Create new file Upload files Find file Clone or download

brauner Merge pull request #3161 from tomponline/tp-lxc-destroy ... Latest commit 6637fb9 3 days ago

.github	issue template: fix typo	3 years ago
coccinelle	coccinelle: use standard exit identifiers	8 months ago
config	[aa-profile] Deny access to /proc/acpi/**	2 months ago
doc	Update lxc.containers.conf(5) in Japanese	5 days ago
hooks	suppress false-negative error in templates and nvidia hook	3 months ago
src	lxc/tools/lxc/destroy: Restores error message on container destroy	3 days ago
templates	Merge pull request #3097 from lpirl/proc-1-uid_map-permission-denied	2 months ago
.gitignore	doc: Add Japanese pam_cgfs(8) man page	28 days ago
.travis.yml	travis: Attempt to fix src/lxc/cmd/lxc_init.c:251: undefined referenc...	7 months ago
AUTHORS	Initial revision	11 years ago
CODING_STYLE.md	coding style: update	5 months ago

lxc/ruby-lxc: ruby bindings for liblxc x +

github.com/lxc/ruby-lxc

Search or jump to... / Pull requests Issues Marketplace Explore

Watch 22 Star 110 Fork 20

Code Issues 4 Pull requests 1 Security Insights

ruby bindings for liblxc <https://linuxcontainers.org/lxc>

Ixc ruby containers

115 commits 4 branches 9 releases 8 contributors LGPL-2.1

Branch: master New pull request Create new file Upload files Find file Clone or download

andrenth Version 1.2.3 Latest commit b0f40f2 on Jul 10, 2018

debian	Version 1.2.3	last year
ext/lxc	Fix build with LXC 3.0	2 years ago
lib	Version 1.2.3	last year
test	Adding early nil return in config_item (when value is empty).	5 years ago
.gitignore	add bundler support	6 years ago
.travis.yml	Update Travis configuration	5 years ago
Gemfile	add bundler support	6 years ago
LICENSE	Standardizing project structure	6 years ago
README.md	Update README.md	5 years ago
Rakefile	Add (still incomplete) RDoc.	6 years ago
ruby-lxc.gemspec	Adding rdoc dependencies for ruby 1.8	5 years ago

lxc/ruby-lxc: ruby bindings for lxc

```
sudo apt-get install ruby-dev lxc-dev  
  
bundle install  
bundle exec rake compile  
bundle exec rake gem  
gem install pkg/ruby-lxc-1.2.0.gem
```

or just add this to your `Gemfile`

```
gem "ruby-lxc", github: "lxc/ruby-lxc", require: "lxc"
```

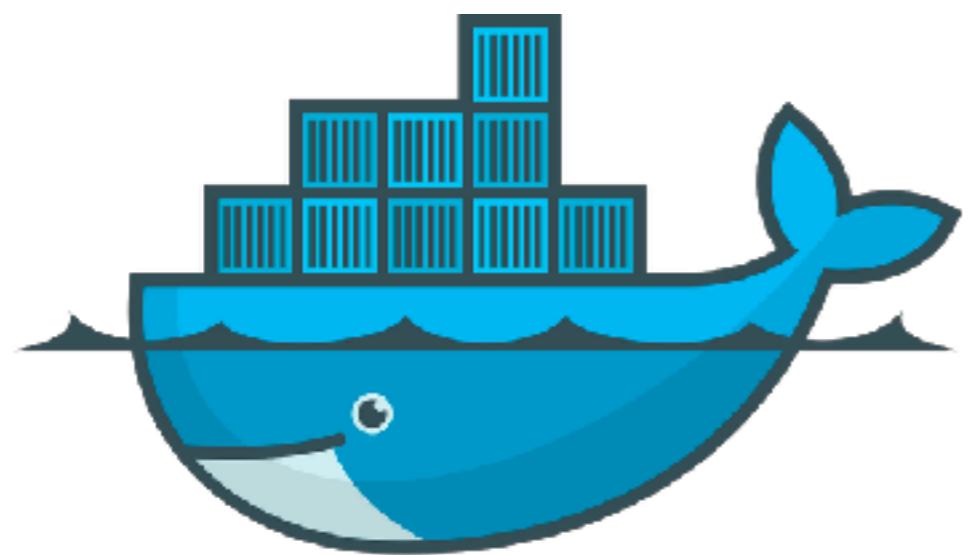
## Usage

- Container lifecycle management (create, start, stop and destroy containers)

```
require 'lxc'  
c = LXC::Container.new('foo')  
c.create('ubuntu') # create a container named foo with ubuntu template  
c.start  
# attach to a running container  
c.attach do  
  LXC.run_command('ifconfig eth0')  
end  
c.stop  
c.destroy
```

- Container inspection

```
c.name  
c.config_path  
c.config_item('lxc.cap.drop')  
c.cgroup_item('memory.limit_in_bytes')  
c.init_pid
```



docker

# **Images and Containers**

What is the difference between a Docker image and a container? star user icon more

stack**overflow** Products Search... 7,984 10 47 81

# What is the difference between a Docker image and a container?

Asked 5 years, 5 months ago Active 30 days ago Viewed 289k times

[Ask Question](#)

When using Docker, we start with a base image. We boot it up, create changes and those changes are saved in layers forming another image.

**770** So eventually I have an image for my PostgreSQL instance and an image for my web application, changes to which keep on being persisted.

So the question is: What is a container?

274 [docker](#) [docker-container](#) [docker-image](#)

[share](#) [edit](#) [close](#) [flag](#)

edited Jul 24 '18 at 7:03



Peter Mortensen

14.5k 19 89 118

asked May 19 '14 at 10:15



bibstha

11.3k 6 25 31

[add a comment](#)

[start a bounty](#)

22 Answers

[active](#) [oldest](#) [votes](#)

An instance of an image is called a container. You have an image, which is a set of layers as you describe. If you start this image, you have a running container of this image. You can have many running containers of the same image.

**1041** You can see all your images with `docker images` whereas you can see your running containers with `docker ps` (and you can see all containers with `docker ps -a`).

So a running instance of an image is a container.

[share](#) [edit](#) [flag](#)

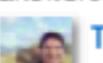
edited Oct 20 '17 at 17:41



Alex Telon

202 6 15

answered May 19 '14 at 11:40



Thomas Uhrig

20 41 12 51 71

Blog

[The Stack Overflow Podcast is Back!](#)

[Coding Salaries in 2019: Updating the Stack Overflow Salary Calculator](#)

Featured on Meta

[Official FAQ on gender pronouns and Code of Conduct changes](#)

[Threshold experiment results: closing, editing and reopening all become more...](#)

[I'm resigning as a Stack Overflow Community Elected Moderator](#)

Linked

**294** [In Docker, what's the difference between a container and an image?](#)

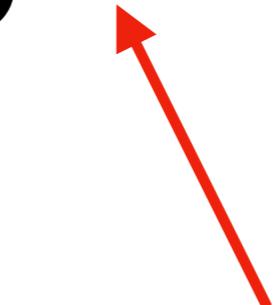
**247** [Difference between Running and Starting a Docker container](#)

**134** [Docker error cannot delete docker container, conflict: unable to remove repository reference](#)

**30** [What is the difference between an image and a repository?](#)

**Image**

# Image



Куча  
файлов в архиве

# **Dockerfile**

```
FROM alpine:3.10 AS build

RUN apk add --update \
    --repository http://dl-3.alpinelinux.org/alpine/edge/community/ \
    git \
    make \
    build-base \
    erlang-xmerl \
    erlang-tools \
    elixir=1.9.1-r1
```

```
WORKDIR /app
```

```
ADD . /app
```

```
ENV MIX_ENV=production
```

```
RUN mix do local.rebar --force, \
    local.hex --force, \
    deps.get, \
    release production
```

```
FROM alpine:3.10
```

```
RUN apk --update add ncurses-libs
RUN apk --update add procps curl postgresql-client lsof
```

```
WORKDIR /app
```

```
COPY --from=build /app/_build/production/rel/production/ /app
```

```
CMD [ "/app/bin/production", "start" ]
```

```
FROM alpine:3.10 AS build

RUN apk add --update \
    --repository http://dl-3.alpinelinux.org/alpine/edge/community/ \
    git \
    make \
    build-base \
    erlang-xmerl \
    erlang-tools \
    elixir=1.9.1-r1

WORKDIR /app

ADD . /app

ENV MIX_ENV=production

RUN mix do local.rebar --force, \
    local.hex --force, \
    deps.get, \
    release production

FROM alpine:3.10

RUN apk --update add ncurses-libs
RUN apk --update add procps curl postgresql-client lsof

WORKDIR /app

COPY --from=build /app/_build/production/rel/production/ /app

CMD [ "/app/bin/production", "start" ]
```

```
FROM alpine:3.10 AS build

RUN apk add --update \
    --repository http://dl-3.alpinelinux.org/alpine/edge/community/ \
    git \
    make \
    build-base \
    erlang-xmerl \
    erlang-tools \
    elixir=1.9.1-r1

WORKDIR /app

ADD . /app

ENV MIX_ENV=production

RUN mix do local.rebar --force, \
    local.hex --force, \
    deps.get, \
    release production

FROM alpine:3.10

RUN apk --update add ncurses-libs
RUN apk --update add procps curl postgresql-client lsof

WORKDIR /app

COPY --from=build /app/_build/production/rel/production/ /app

CMD [ "/app/bin/production", "start" ]
```

```
FROM alpine:3.10 AS build

RUN apk add --update \
    --repository http://dl-3.alpinelinux.org/alpine/edge/community/ \
    git \
    make \
    build-base \
    erlang-xmerl \
    erlang-tools \
    elixir=1.9.1-r1

WORKDIR /app

ADD . /app

ENV MIX_ENV=production

RUN mix do local.rebar --force, \
    local.hex --force, \
    deps.get, \
    release production

FROM alpine:3.10

RUN apk --update add ncurses-libs
RUN apk --update add procps curl postgresql-client lsof

WORKDIR /app

COPY --from=build /app/_build/production/rel/production/ /app

CMD [ "/app/bin/production", "start" ]
```

# Demo

docker build

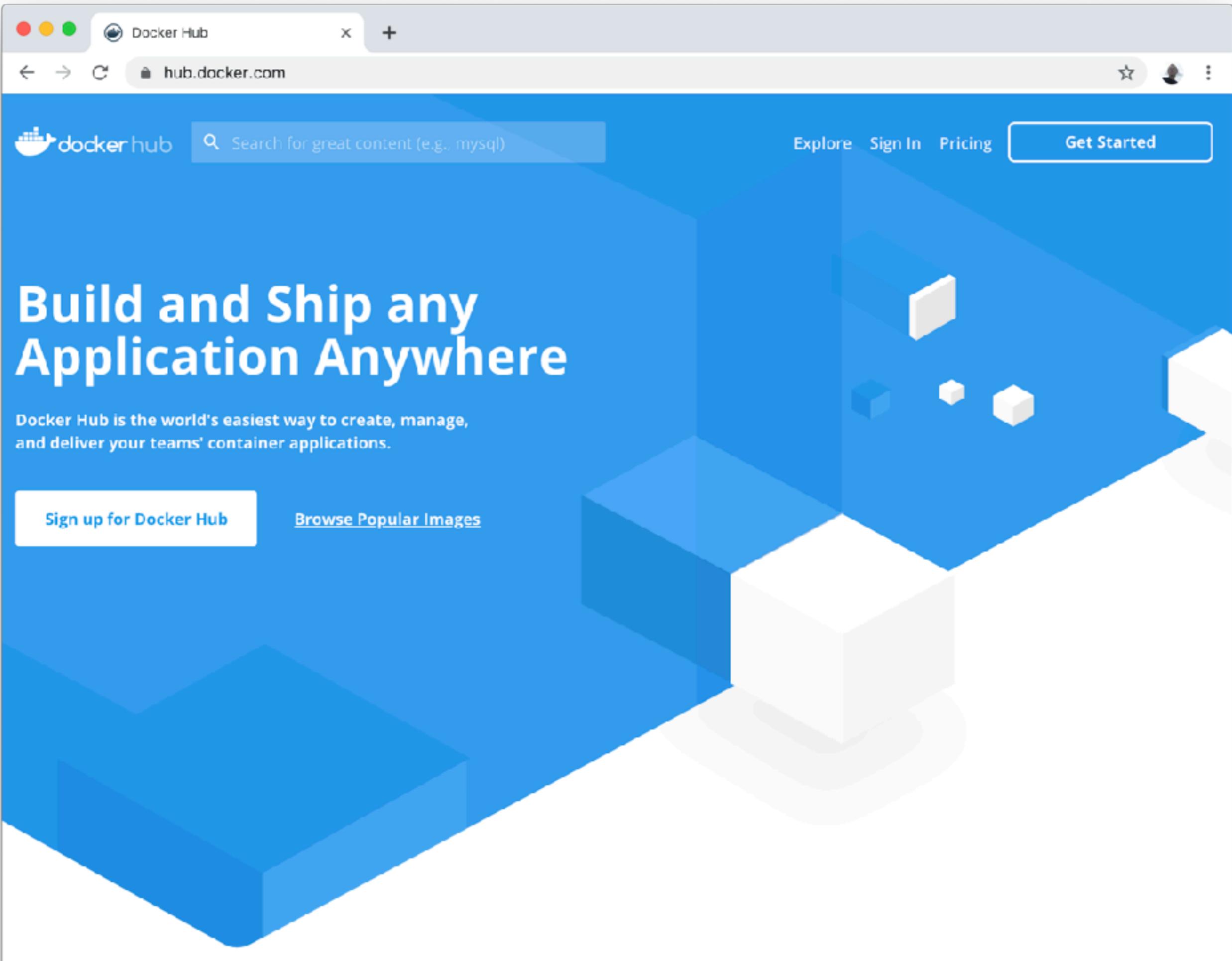
docker images

docker tag

docker push

docker pull

# **Реестр контейнеров**



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 2,728,752 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  
 Featured Images  
 Messaging Services

**couchbase** OFFICIAL IMAGE   
Updated an hour ago 10M+ 486 Downloads Stars  
Couchbase Server is a NoSQL document database with a distributed architecture.  
Container Linux x86-64 Storage Application Frameworks

**busybox** OFFICIAL IMAGE   
Updated an hour ago 10M+ 1.7K Downloads Stars  
Busybox base image.  
Container Linux IBM Z ARM x86-64 ARM 64 386 PowerPC 64 LE Base Images

**alpine** OFFICIAL IMAGE   
Updated an hour ago 10M+ 5.7K Downloads Stars  
A minimal Docker image based on Alpine Linux with a complete package index and only 5 MB in size!  
alpine

ubuntu - Docker Hub    +

hub.docker.com/\_/ubuntu

 docker hub  Explore Sign In Pricing Get Started

# ubuntu ☆

Docker Official Images

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

10M+ 

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

Operating Systems Official Image

Linux - IBM Z ( latest ) 

Copy and paste to pull this image

`docker pull ubuntu` 

[View Available Tags](#)

**DESCRIPTION** **REVIEWS** **TAGS**

 Please log in to write a review of this product.

## Supported tags and respective Dockerfile links

- 18.04, bionic-20190912.1, bionic, latest
- 18.10, cosmic-20190719, cosmic

Explore - Docker Hub    +

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

docker hub   

Explore Sign In Pricing    Get Started

DOCKER EE    DOCKER CE    CONTAINERS    PLUGINS

Filters    1 - 25 of 49,619 results for nginx. [Clear search](#)

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  
 Featured Images  
 Messaging Services

nginx    Updated an hour ago

Official build of Nginx.

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

Application Infrastructure

nginx/nginx-ingress    5M+ 22

By nginx • Updated 2 days ago

NGINX Ingress Controller for Kubernetes

Container Linux x86-64

nginxdemos/hello    10M+ 31

By nginxdemos • Updated 2 years ago

nginx - Docker Hub    +

hub.docker.com/\_/nginx

 docker hub   

Explore Sign In Pricing    Get Started

 nginx ★  
Docker Official Images  
Official build of Nginx.

10M+ 

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

Application Infrastructure Official Image

Linux - x86 ( latest ) 

Copy and paste to pull this image

`docker pull nginx` 

[View Available Tags](#)

**DESCRIPTION**    **REVIEWS**    **TAGS**

 Please log in to write a review of this product.

## Supported tags and respective Dockerfile links

- `1.17.4, mainline, 1, 1.17, latest`
- `1.17.4-perl, mainline-perl, 1-perl, 1.17-perl, perl`

postgres - Docker Hub    +

hub.docker.com/\_/postgres

 docker hub        Explore Sign In Pricing Get Started

# postgres ☆

Docker Official Images

The PostgreSQL object-relational database system provides reliability and data integrity.

10M+ 

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

Official Image

Linux - ARM ( latest ) 

Copy and paste to pull this image

`docker pull postgres` 

[View Available Tags](#)

**DESCRIPTION**    **REVIEWS**    **TAGS**

 Please log in to write a review of this product.

## Supported tags and respective Dockerfile links

- 12.0, 12, latest
- 12.0-alpine, 12-alpine, alpine

ruby - Docker Hub X +

hub.docker.com/\_/ruby

dockerhub  Explore Sign In Pricing Get Started

# Ruby

Docker Official Images

Ruby is a dynamic, reflective, object-oriented, general-purpose, open-source programming language.

10M+ Container Linux PowerPC 64 LE x86-64 IBM Z ARM 386 ARM 64

Programming Languages Official Image

Linux - IBM Z ( latest )

Copy and paste to pull this image

`docker pull ruby`

[View Available Tags](#)

**DESCRIPTION** **REVIEWS** **TAGS**

Please log in to write a review of this product.

## Supported tags and respective Dockerfile links

- [2.7.0-preview1-buster](#), [2.7-rc-buster](#), [rc-buster](#), [2.7.0-preview1](#), [2.7-rc](#), [rc](#)

elixir - Docker Hub

hub.docker.com/\_/elixir

dockerhub

elixir

Explore Sign In Pricing Get Started

# elixir ☆

 elixir

Docker Official Images

Elixir is a dynamic, functional language for building scalable and maintainable applications.

10M+

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

Programming Languages Official Image

Linux - PowerPC 64 LE ( latest )

Copy and paste to pull this image

`docker pull elixir`

[View Available Tags](#)

DESCRIPTION REVIEWS TAGS

 Please log in to write a review of this product.

## Supported tags and respective Dockerfile links

- 1.9.2, 1.9, latest
- 1.9.2-slim, 1.9-slim, slim

c0b/docker-elixir: Official Docker image for Elixir

github.com/c0b/docker-elixir

Search or jump to... / Pull requests Issues Marketplace Explore

c0b / docker-elixir Watch 12 Star 153 Fork 52

Code Issues 8 Pull requests 2 Projects 1 Wiki Security Insights

Official Docker image for Elixir    <http://elixir-lang.org/>

74 commits 4 branches 0 releases 20 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

getong and c0b elixir v1.9.2 Latest commit 3f67ae9 5 days ago

1.2	generate new manifest file format for official-images	3 years ago
1.3	Upgrades elixir to 1.3.4	3 years ago
1.4	Upgrades elixir to 1.4.5	2 years ago
1.5	Upgrades elixir to 1.5.3	2 years ago
1.6	add elixir 1.8.0 & fix checksum	10 months ago
1.7	Introduce OTP-21.2 to versions 1.7 and 1.8	7 months ago
1.8	Add a new variant elixir:1.8-otp-22 for those brave souls to play with !	5 months ago
1.9	elixir v1.9.2	3 days ago
master	build Elixir master v1.9.0-dev@cee233c	7 months ago
.travis.yml	add elixir v1.9.0-rc.0 (#116)	4 months ago
README.md	update for v1.4.0-rc1	3 years ago
generate-stackbrew-library.sh	export erlang/otp 22 and delete erlang/otp 21.2	3 months ago

Build more OTP versions? · Issue #122

github.com/c0b/docker-elixir/issues/122

Search or jump to... / Pull requests Issues Marketplace Explore

c0b / docker-elixir Watch 12 Star 153 Fork 52

Code Issues 8 Pull requests 2 Projects 1 Wiki Security Insights

## Build more OTP versions? #122

**Open** josevalim opened this issue on Sep 11 · 8 comments



josevalim commented on Sep 11

+ 😊 ...

Hi @c0b!

Thank you for all the work on maintaining the Docker images!

Now that GitHub Actions is using containers, I expect developers to want to use more combinations of Elixir+OTP. For deployment, it is fine (and even recommended) to push to the latest versions, but as a maintainer of Ecto/Phoenix/etc, I may want to test more combinations (for example, 1.9+22.3 and 1.9+22.0). In this case, would it be possible for you build images for each support OTP branch? For example, for v1.9, it would be 1.9+20.3, 1.9+21.3, and 1.9+22-latest. The complete list can always be found here: <https://hexdocs.pm/elixir/compatibility-and-deprecations.html#compatibility-between-elixir-and-erlang-otp>

Btw, I have no idea how hard this actually is, so if for some reason this is tons of work, then feel free to close this.

Thanks!

7

### Assignees

No one assigned

### Labels

None yet

### Projects

None yet

### Milestone

No milestone

### Notifications

Customize

Subscribe

You're not receiving notifications from this thread.

5 participants

Container Registry | Google Cloud

cloud.google.com/container-registry/

Google Cloud Why Google Solutions Products Pricing Getting started

Docs Support Console

Contact sales

# Container Registry

Store, manage, and secure your Docker container images.

[Go to console](#)

[View documentation](#)

## More than a private Docker repository

Container Registry is a single place for your team to manage Docker images, perform vulnerability analysis, and decide who can access what with fine-grained access control. Existing CI/CD integrations let you set up fully automated Docker pipelines to get fast feedback.



A screenshot of a web browser window displaying the GitHub Package Registry landing page at [github.com/features/package-registry](https://github.com/features/package-registry). The browser interface includes standard controls like back/forward, search, and tabs. The GitHub header features the logo, search bar, and navigation links for Pull requests, Issues, Marketplace, and Explore. The main content area is titled "GitHub Package Registry" and features a large, bold headline: "Your packages, at home with their code". Below the headline, a subtext explains: "With GitHub Package Registry you can safely publish and consume packages within your organization or with the entire world." A prominent blue button labeled "Sign up for the beta" is centered below the subtext. At the bottom of the page, there's a visual representation of a terminal window showing npm commands, and a "nuget" logo is visible on the right.

# GitHub Package Registry

## Your packages, at home with their code

With GitHub Package Registry you can safely publish and consume packages within your organization or with the entire world.

[Sign up for the beta](#)



bash

npm

Docker

Maven

NuGet

RubyGems

```
$ npm login --registry=https://npm.pkg.github.com --scope=@phanatic
Successfully logged in.
```



Harbor

goharbor.io

HARBOR

Community Docs Blogs Get Started

# Harbor

Manage and serve container images in a secure environment

Get Started Download Now

## What is Harbor?

Harbor is an open source cloud native registry that stores,

# Demo

docker save

docker commit

# **Container**

# Demo

```
docker run  
docker ps  
docker logs  
docker cp  
docker exec
```

What is the runtime performance cost of a Docker container? 7,984 ▪ 10 ▪ 47 ▪ 81

stackoverflow Products Search... Ask Question

# What is the runtime performance cost of a Docker container?

Asked 5 years, 8 months ago Active 11 months ago Viewed 131k times

I'd like to comprehensively understand the run-time performance cost of a Docker container. I've found references to [networking anecdotally being ~100µs slower](#).

445

I've also found references to the run-time cost being "negligible" and "close to zero" but I'd like to know more precisely what those costs are. Ideally I'd like to know what Docker is abstracting with a performance cost and things that are abstracted without a performance cost. Networking, CPU, memory, etc.

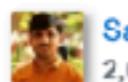
171

Furthermore, If there are abstraction costs, are there ways to get around the abstraction cost. For example, perhaps I can mount a disk directly vs. virtually in Docker.

performance docker

share edit close flag

edited Oct 25 '18 at 5:34



Sagar Zala

2,616 ▪ 5 ▪ 17 ▪ 41

asked Feb 19 '14 at 18:19



Luke Hoersten

2,777 ▪ 3 ▪ 15 ▪ 18

protected by e4c5 Dec 19 '16 at 1:42

This question is protected to prevent "thanks!", "me too!", or spam answers by new users. To answer it, you must have earned at least 10 [reputation](#) on this site (the [association bonus](#) does not count).

2 possible duplicate of [Is there a formula for calculating the overhead of a Docker container? – Golo Roden](#)  
Feb 19 '14 at 18:22

1 @ColoRoden that question is similar but not exactly the same. I'm looking for latency costs with reasons like "networking is being passed through an extra layer" whereas that question's accepted answer is more about measuring the costs of the container + app. – [Luke Hoersten](#) Feb 19 '14 at 18:29

1 Okay, that's right. I retracted my close vote. – [Golo Roden](#) Feb 19 '14 at 18:43

## Blog

[The Stack Overflow Podcast is Back!](#)

[Coding Salaries in 2019: Updating the Stack Overflow Salary Calculator](#)

## Featured on Meta

[Official FAQ on gender pronouns and Code of Conduct changes](#)

[Threshold experiment results: closing, editing and reopening all become more...](#)

[I'm resigning as a Stack Overflow Community Elected Moderator](#)

## Linked

11 Is there a formula for calculating the overhead of a Docker container?

13 How to optimize performance for a docker container?

2 Performance Comparison between Native System and Docker Container

0 Multiple Docker Container Performance

1 Linux tools package container

High CPU Utilization of Hyperkit X +

github.com/docker/for-mac/issues/1759

Search or jump to... / Pull requests Issues Marketplace Explore

docker / for-mac Watch 154 Star 1.2k Fork 66

Code Issues 357 Pull requests 1 Actions Projects 0 Security Insights

## High CPU Utilization of Hyperkit in Mac #1759

**Open** taufek opened this issue on Jun 21, 2017 · 461 comments



taufek commented on Jun 21, 2017 • edited

+ 😊 ...

My CPU utilization by hyperkit on my mac seems too high. It caused my mac to overheat.

Activity Monitor (All Processes)							
Process Name	% CPU	CPU Time	Threads	Idle Wake Ups	PID	User	
hyperkit	214.9	1:01:10.66	18	334	913	taufekjohar	
softwareupdated	29.6	9.09	11	35	525	_softwareupda	
com.docker.osxfs	25.5	5:28.40	17	30	912	taufekjohar	
Google Chrome Helper	24.0	5:48.94	18	1	42811	taufekjohar	
Google Chrome Helper	19.1	9:05.12	19	1	29362	taufekjohar	

Below is my docker version info:

```
└ docker version
Client:
Version: 17.06.0-ce-rc4
API version: 1.30
Go version: go1.8.3
Git commit: 29fcd5d
Built: Thu Jun 15 17:29:01 2017
OS/Arch: darwin/amd64

Server:
Version: 17.06.0-ce-rc4
```

### Assignees



djs55

### Labels

kind/docs

status/1-acknowledged

version/10.13.6

version/10.14.4

version/18.06.1-ce-mac73

version/2.0.0.0-beta1-mac75

version/2.0.0.0-mac81

version/2.0.0.0-mac82

### Projects

None yet

### Milestone

No milestone

HyperKit high cpu consumption X +

← → C github.com/docker/for-mac/issues/2582

Search or jump to... / Pull requests Issues Marketplace Explore

Watch 154 Star 1.2k Fork 66

Code Issues 357 Pull requests 1 Actions Projects 0 Security Insights

# HyperKit high cpu consumption #2582

**Open** bypotatoes opened this issue on Feb 8, 2018 · 26 comments



bypotatoes commented on Feb 8, 2018

+ 😊 ...

## Expected behavior

To have cpu level pretty same for dockerized app and not

## Actual behavior

When rails app handles request level of cpu increases to 150-280% depends on how heavy page is, after few seconds it returns to normal level, instead of [#2503](#) and similar where cpu level is permanently high

## Information

```
macOS: version 10.13.3 (build: 17D47)
logs: /tmp/89DC5C0F-2ED3-4106-AEFA-5D79EC2AC30B/20180208-023454.tar.gz
[OK] db.git
[OK] vmnetd
[OK] dns
[OK] driver.amd64-linux
[OK] virtualization VT-X
[OK] app
[OK] moby
[OK] system
```

### Assignees

No one assigned

### Labels

area/hyperkit

lifecycle/stale

status/0-triage

### Projects

None yet

### Milestone

No milestone

### Notifications

Customize

Subscribe

You're not receiving notifications from this thread.

docker slow windows - Google

← → C google.com/search?q=docker+slow+windows&oq=docker+slow+windows&aqs=chrome..69i57j0l5.3952j0j4&sourceid=chr... ☆ :

**Google** docker slow windows

All Images Videos News Shopping More Settings Tools

About 1,850,000 results (0.48 seconds)

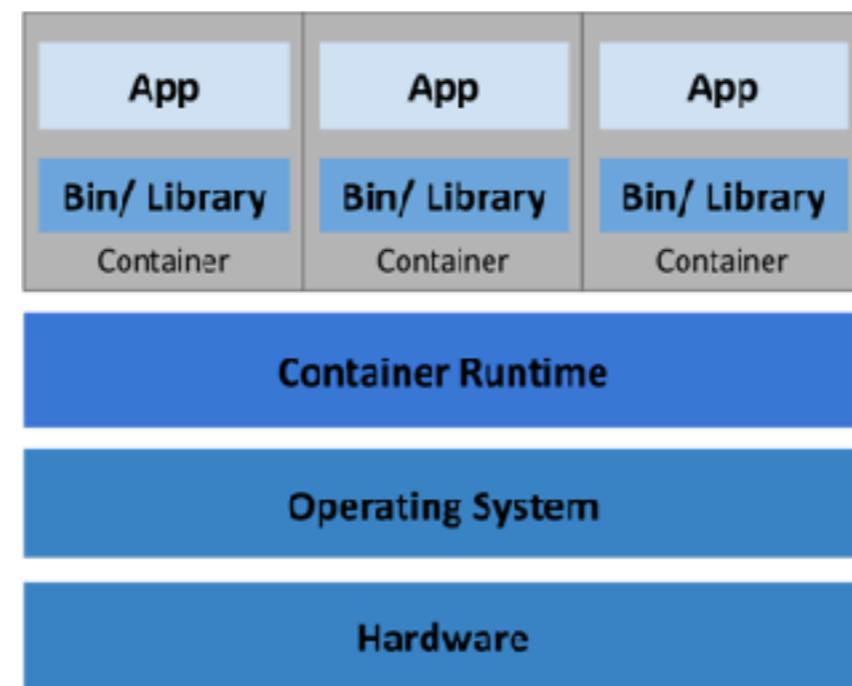
**Extremely slow on Windows 10 · Issue #1936 · docker/for-win ...**  
<https://github.com/docker/for-win/issues/1936>  
Apr 10, 2018 - Currently running Windows 10 Pro, with 32GB memory, 1TB SSD, Intel quad-core at 2.8GHz (not hyperthreading processes), so pretty good hardware. Using Docker for Windows with Hyper-V enabled. Equally slow on Windows and Linux Containers. ... Settings for Docker increased to 10GB memory and 4 CPU cores with no improvement.

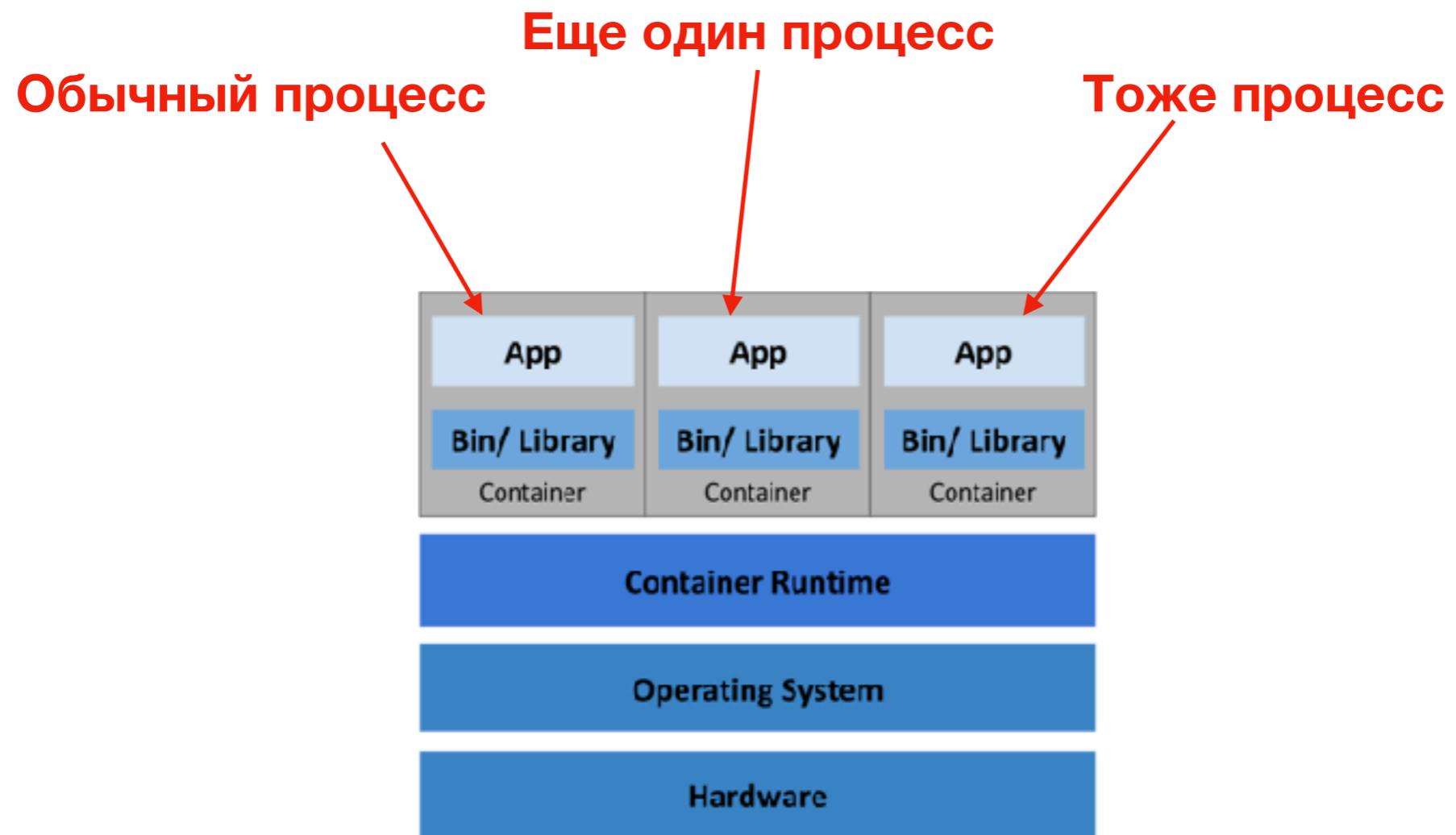
**Docker commands are very slow on Windows · Issue #2131 ...**  
<https://github.com/docker/for-win/issues/2131>  
Jun 20, 2018 - @jasonmcboyd jasonmcboyd changed the title Docker commands are very slow  
Docker commands are very slow on Windows on Jun 20, 2018.

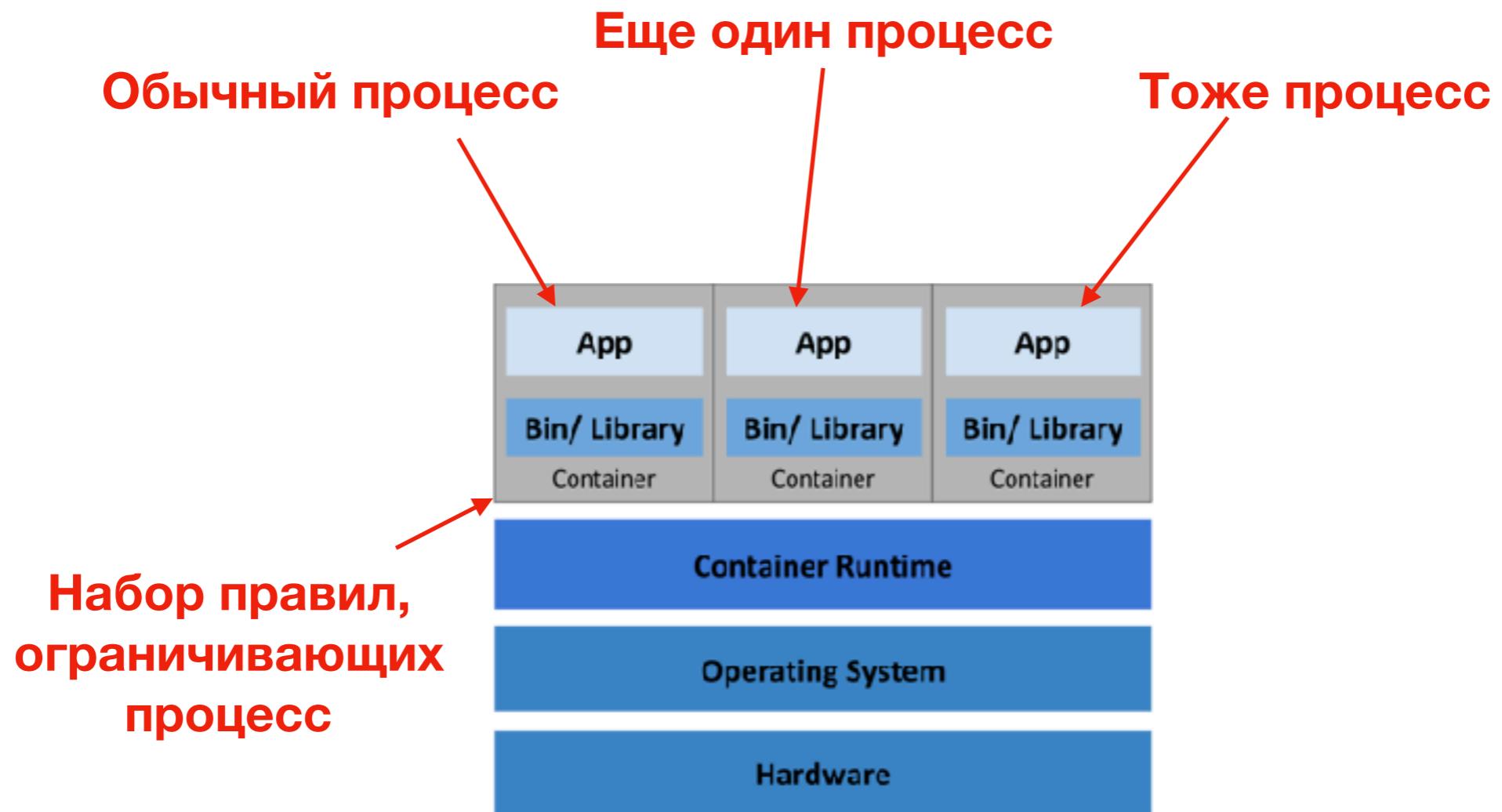
**Another reason why your Docker containers may be slow - By**  
<https://hackernoon.com/another-reason-why-your-docker-containers-may-be-slow>  
And on Docker & Kubernetes, we were able to launch only 3–4 copies of a product on a 72 CPU / 512 Gb RAM machine, before things were becoming too slow.

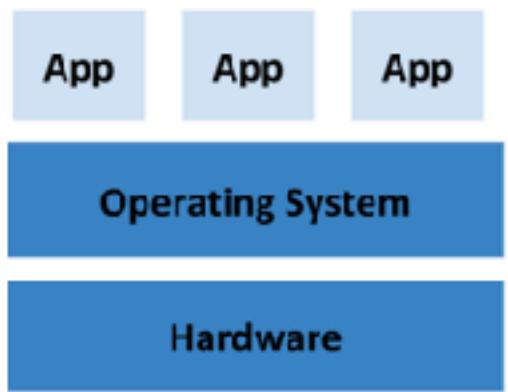
**Docker is very slow on Windows 10 : docker - Reddit**  
[https://www.reddit.com/r/docker/comments/89vz3t/docker\\_is\\_very\\_slow\\_on\\_windows\\_10/](https://www.reddit.com/r/docker/comments/89vz3t/docker_is_very_slow_on_windows_10/)  
Mar 29, 2018 - Docker is very slow on Windows 10. Make sure you go into the advanced settings and give docker sufficient resources (cores / ram). Other than that, yes it definitely runs better on Linux but for development it should be fine.

**Docker for Mac/Windows performances vs Linux** Feb 15, 2018  
**Is really docker for windows THAT broken?** Jan 11, 2019  
**Docker 1.13 Windows Containers on Windows 10 are very slow ...** Jan 25, 2017  
More results from www.reddit.com



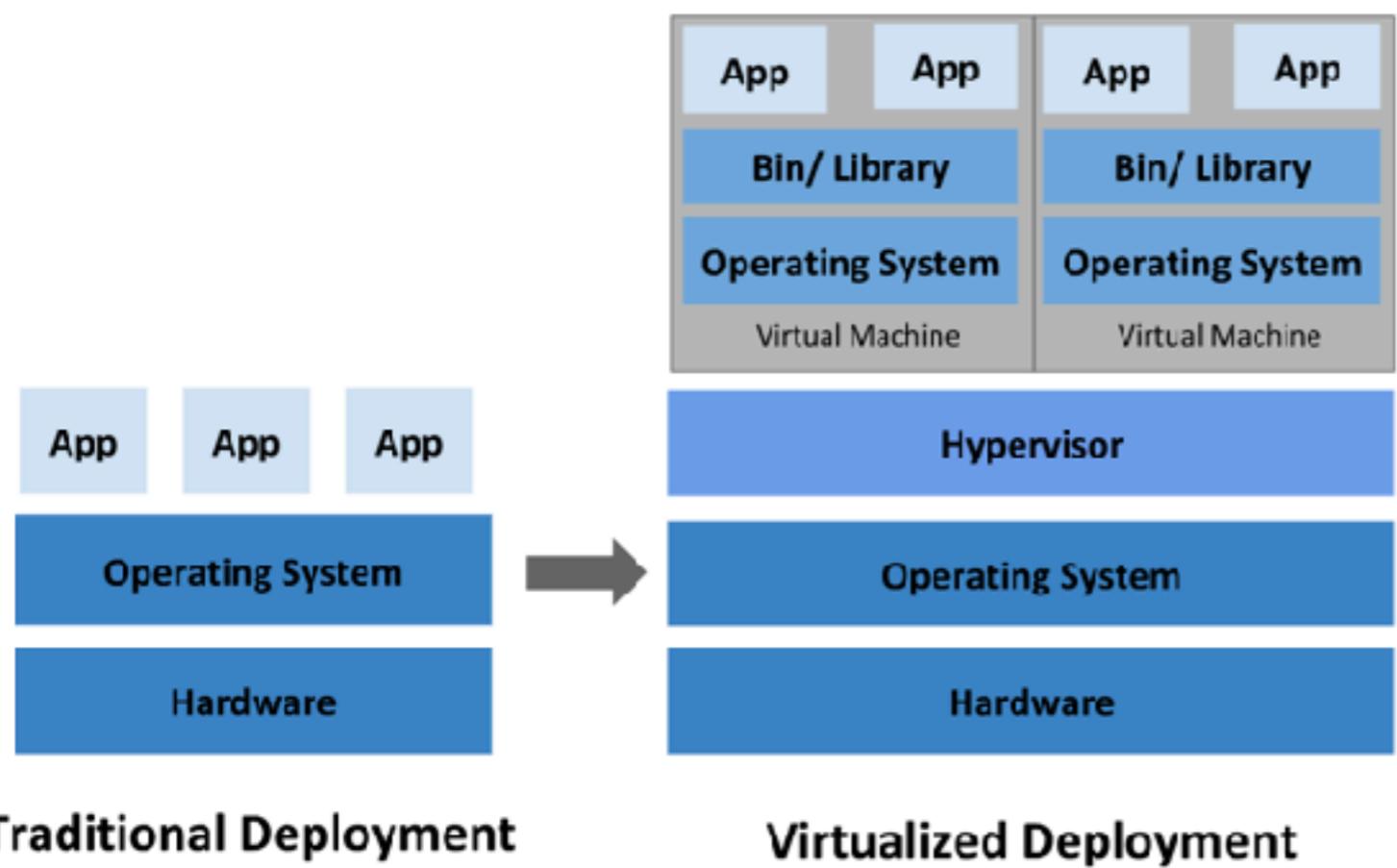


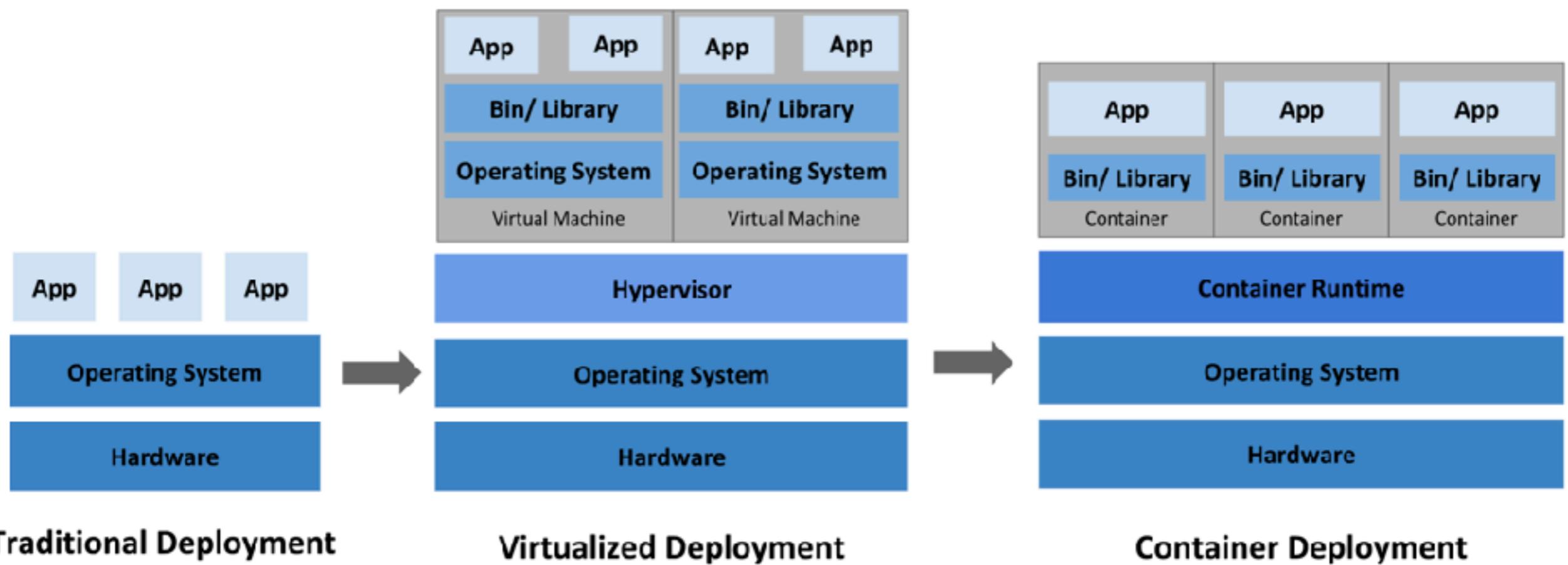




## Traditional Deployment

---





# **Linux app containers**

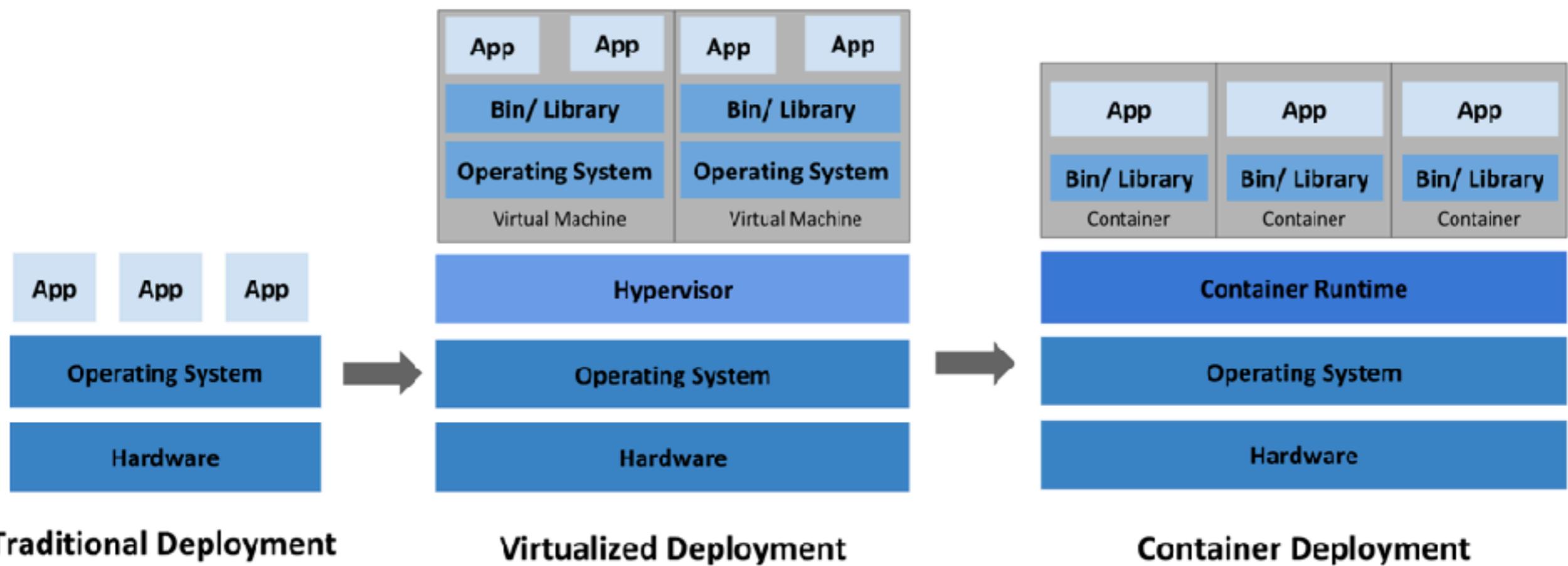
Solves a resource  
isolation problem

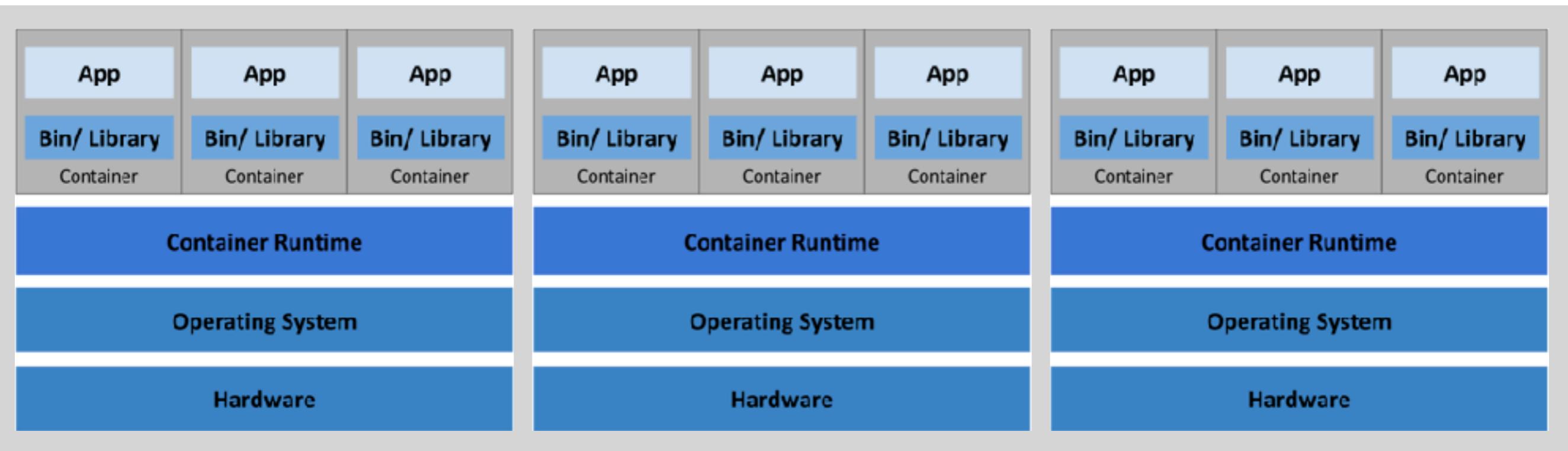
## **Docker**

Solves packaging  
and distribution problem

## **Kubernetes**

Solves "where to run containers?"  
problem





## Deployment in Kubernetes



**kubernetes**



**I Am Devloper**  
@iamdevloper

"Learn Kubernetes in 128 easy steps!"

1:32 PM · Oct 17, 2019 · [Twitter Web App](#)

---

**667** Retweets    **4K** Likes

---

PD  
OS borg.pdf

← → C pdos.csail.mit.edu/6.824/papers/borg.pdf

# Large-scale cluster management at Google with Borg

Abhishek Verma<sup>†</sup> Luis Pedrosa<sup>‡</sup> Madhukar Korupolu  
David Oppenheimer Eric Tune John Wilkes  
Google Inc.

## Abstract

Google's Borg system is a cluster manager that runs hundreds of thousands of jobs, from many thousands of different applications, across a number of clusters each with up to tens of thousands of machines.

It achieves high utilization by combining admission control, efficient task-packing, over-commitment, and machine sharing with process-level performance isolation. It supports high-availability applications with runtime features that minimize fault-recovery time, and scheduling policies that reduce the probability of correlated failures. Borg simplifies life for its users by offering a declarative job specification language, name service integration, real-time job monitoring, and tools to analyze and simulate system behavior.

We present a summary of the Borg system architecture and features, important design decisions, a quantitative analysis of some of its policy decisions, and a qualitative examination of lessons learned from a decade of operational experience with it.

## 1. Introduction

The cluster management system we internally call Borg admits, schedules, starts, restarts, and monitors the full range of applications that Google runs. This paper explains how.

Borg provides three main benefits: it (1) hides the details of resource management and failure handling so its users can focus on application development instead; (2) operates with very high reliability and availability, and supports applications that do the same; and (3) lets us run workloads across

The diagram illustrates the high-level architecture of Borg. At the top, four user interface components are shown: 'config file', 'borgd', 'command-line tools', and 'web browser'. Arrows point from these interfaces to a central component labeled 'BorgMaster'. The BorgMaster is depicted as a stack of three horizontal layers: 'read/UI shard' (top), 'link shard' (middle), and 'persistent store (Mnesia)' (bottom). A 'scheduler' box is connected to the BorgMaster via an arrow. Below the BorgMaster, four worker nodes are represented as blue rectangular boxes, each labeled 'Borglet'. Arrows point from the BorgMaster down to each Borglet, indicating the flow of management and execution.

**Figure 1:** The high-level architecture of Borg. Only a tiny fraction of the thousands of worker nodes are shown.

cluding with a set of qualitative observations we have made from operating Borg in production for more than a decade.

## 2. The user perspective

Borg's users are Google developers and system administrators (site reliability engineers or SREs) that run Google's applications and services. Users submit their work to Borg in the form of *jobs*, each of which consists of one or more *tasks* that all run the same program (binary). Each job runs in one Borg *cell*, a set of machines that are managed as a unit. The remainder of this section describes the main fea-

The Changelog #250: The Backstory of Kubernetes

changelog.com/podcast/250

News Podcasts Community Subscribe Submit News Sign In Search Changelog

The Changelog - Episode #250

# The Backstory of Kubernetes

with Tim Hockin and Aparna Sinha



All Episodes

PLAY DISCUSS SUBSCRIBE SPONSOR

BROUGHT TO YOU BY



Tim Hockin and Aparna Sinha joined the show to talk about the backstory of Kubernetes inside Google, how Tim and others got it funded, the infrastructure of Kubernetes, and how they've been able to succeed by focusing on the community.

kubernetes/kubernetes: Production-grade container scheduling and management

github.com/kubernetes/kubernetes

Search or jump to... / Pull requests Issues Marketplace Explore

Unwatch releases 3k Unstar 59k Fork 20.7k

Code Issues 2,275 Pull requests 1,023 Actions Projects 9 Security Insights

Production-Grade Container Scheduling and Management <https://kubernetes.io>

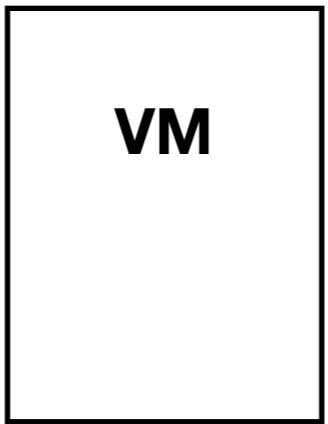
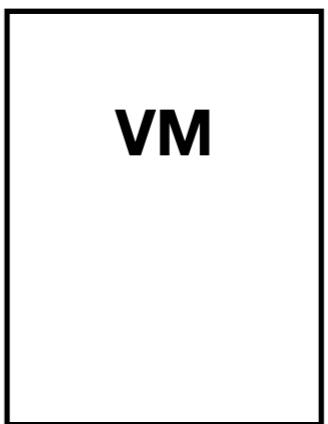
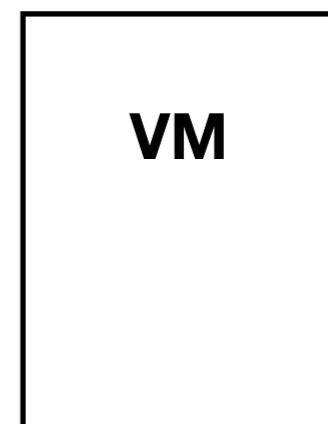
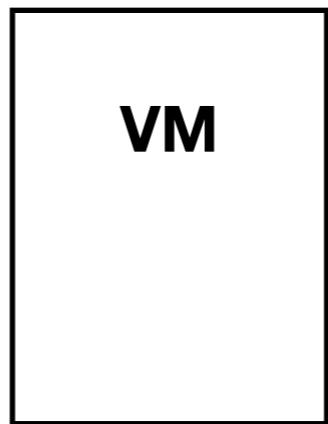
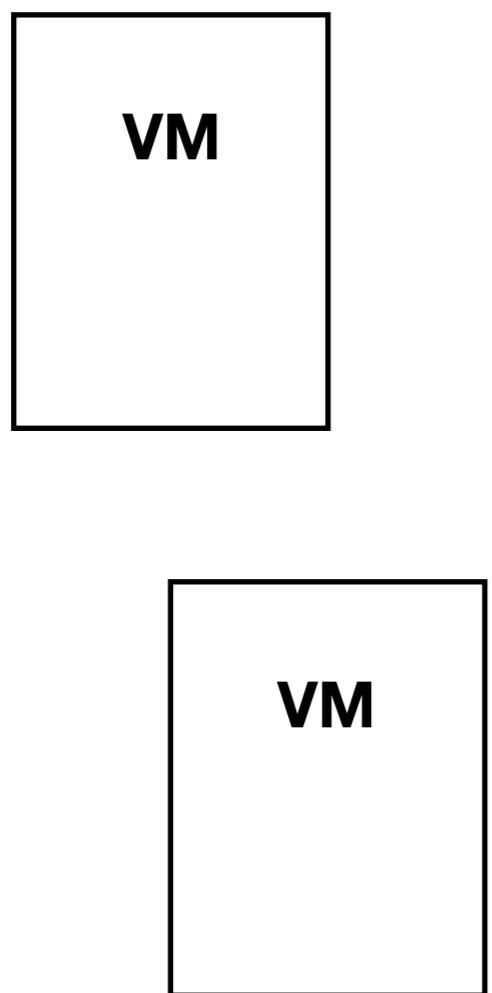
kubernetes go cnf containers

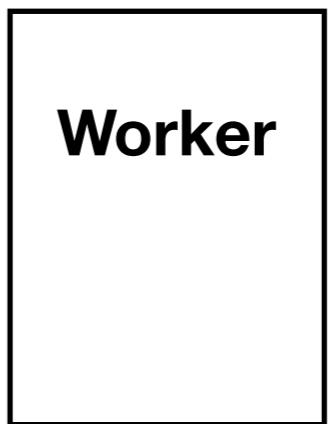
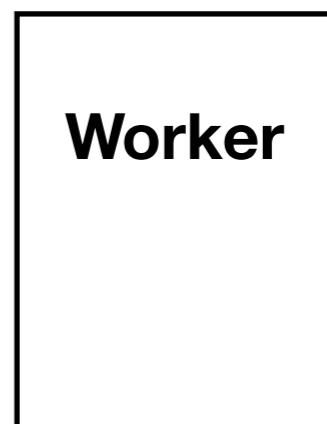
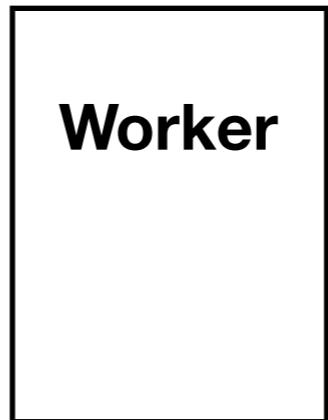
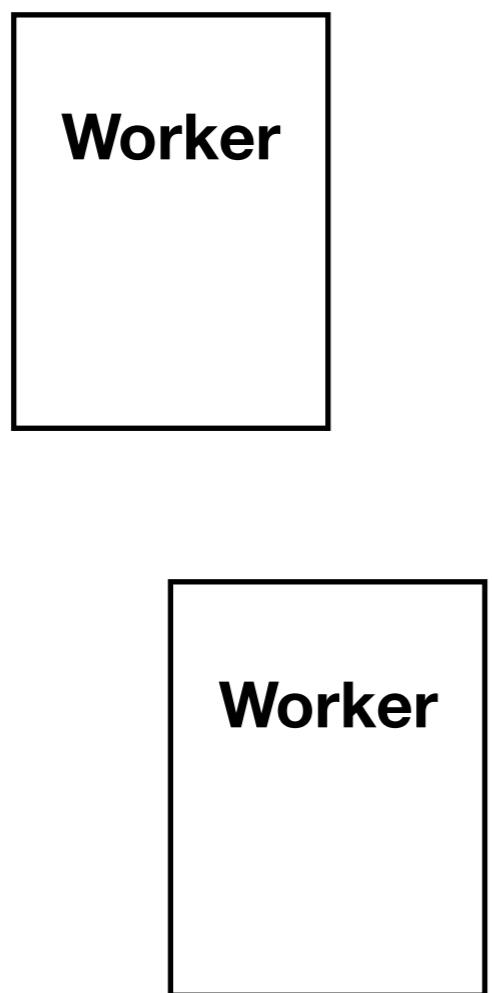
84,392 commits 39 branches 0 packages 573 releases 2,319 contributors Apache-2.0

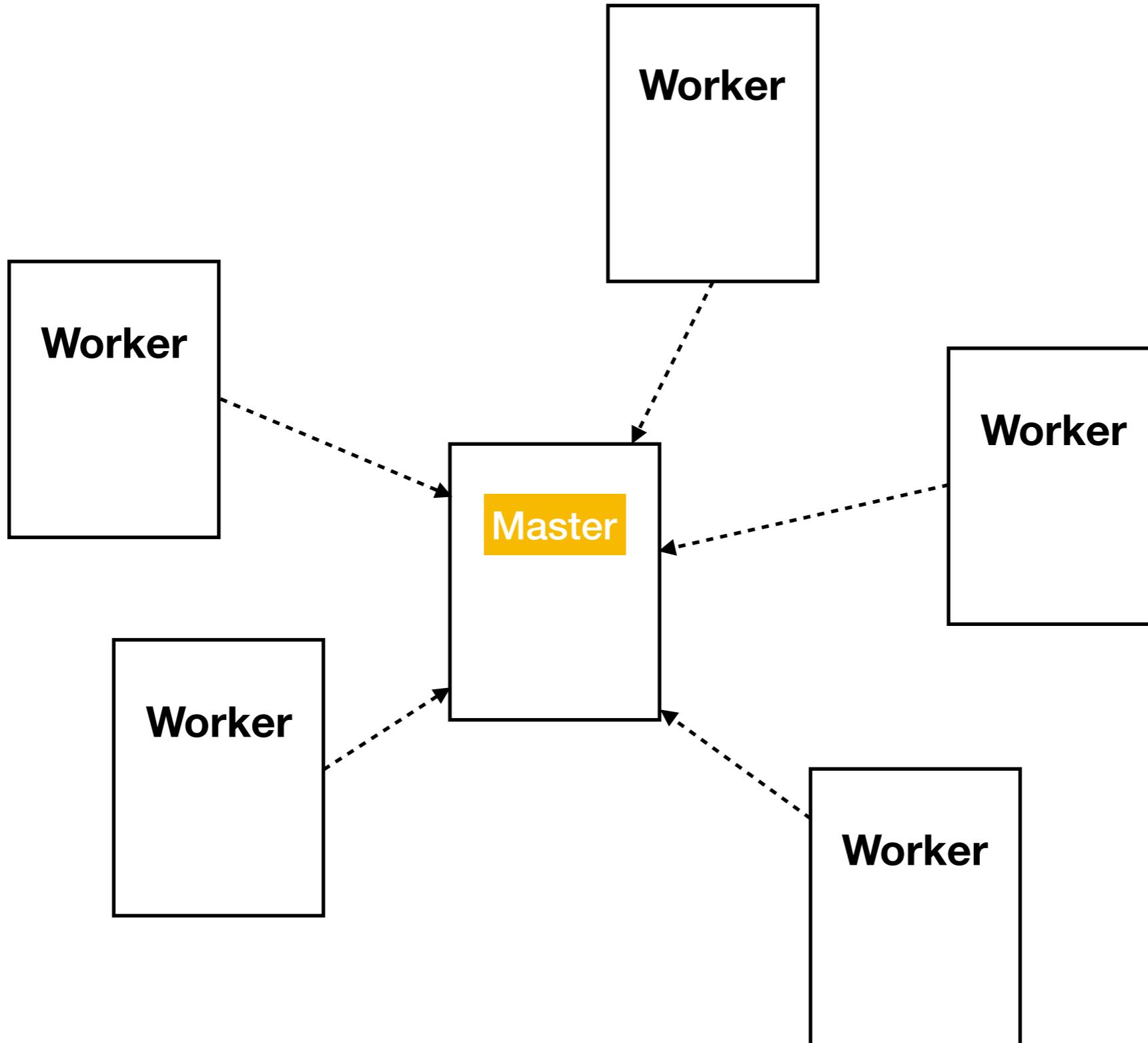
Branch: master New pull request Create new file Upload files Find file Clone or download

Commit	Message	Time Ago
	k8s-ci-robot Merge pull request #84073 from draveness/feature/cleanup-framework-pl...	Latest commit 4222561 4 hours ago
	.github Merge pull request #83049 from obitech/update_pr_template_release_not...	17 days ago
	Codeps Update munnerz/goautoneg dependency	8 days ago
	api Merge pull request #83195 from wojtek-t/watch_bookmarks_ga	21 hours ago
	build Merge pull request #83944 from openSUSE/cri-tools-windows	2 days ago
	cluster Merge pull request #81345 from k-toyoda-pi/fix_shellcheck_validate-cl...	yesterday
	cmd Prune inactive owners from cmd/kube-controller-manager/OWNERS.	yesterday
	docs Updated OWNERS files to include link to docs	9 months ago
	hack Merge pull request #84055 from odinuge/cherry_pick_indent	7 hours ago
	logo Correct URL	6 months ago
	pkg Merge pull request #84073 from draveness/feature/cleanup-framework-pl...	4 hours ago
	plugin Merge pull request #81940 from carlory/fix-appserver	8 days ago

**VM**







**Master node**

**Worker node**

**Master node**



**Worker node**



Как-нибудь в другой раз  
A red arrow originates from the bottom left and points diagonally upwards towards the 'Master node' box.

## **Master node**

**Master node**

**Controllers**

**REST API**

**etcd**

**Master node**

**Controllers**

**REST API**

**etcd**

**Master node**

**Обычная  
виртуальная  
машина  
на линуксе**

**Controllers**

**REST API**

**etcd**

## Master node

### Controllers

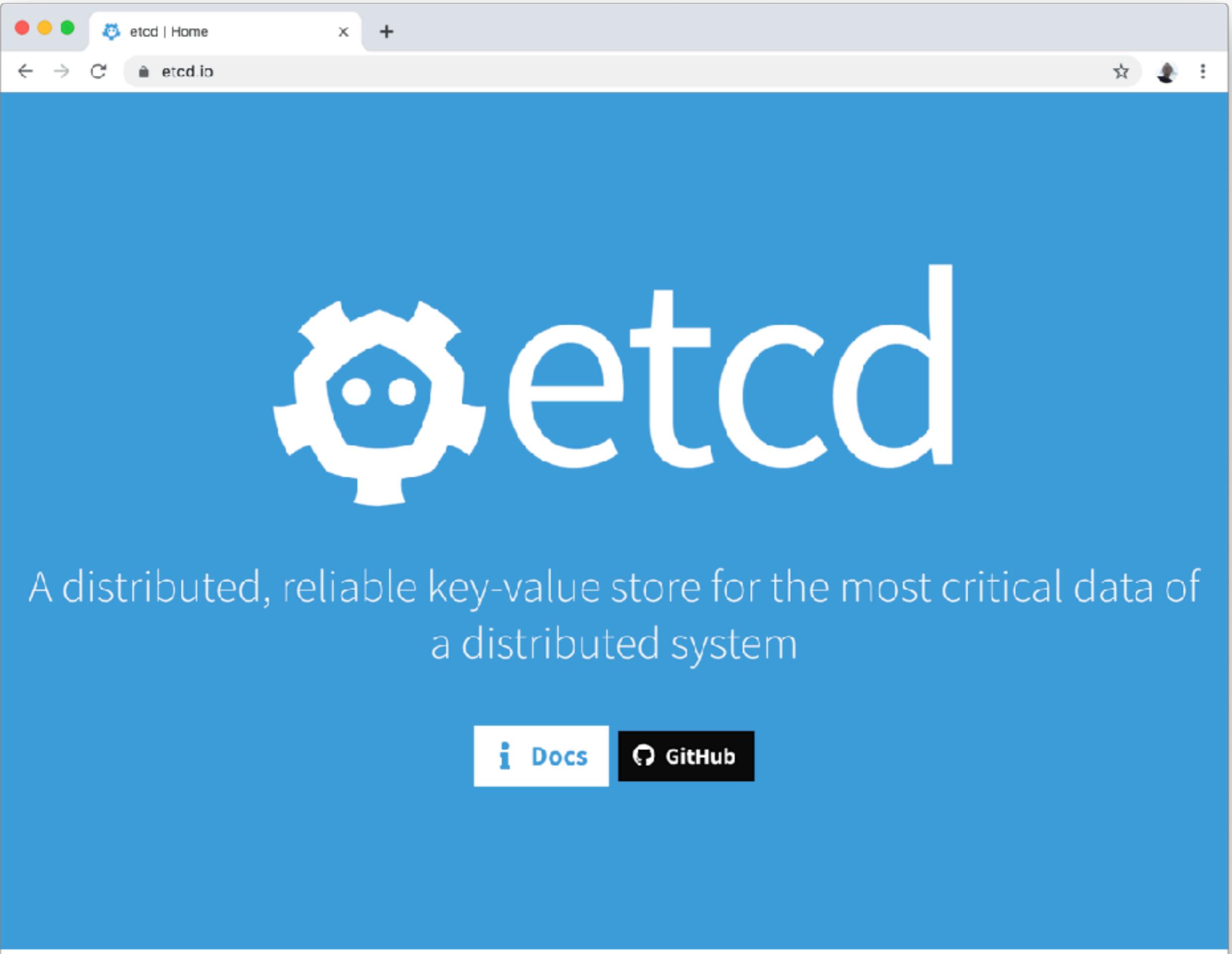
Программы,  
которые  
следят за  
объектами

### REST API

веб-сервер  
для работы  
с объектами

### etcd

key-value база  
данных,  
хранит объект



etcd-io/etcd: Distributed reliable key-value store for the most critical data of a distributed system <https://etcd.io>

Watch 1.3k Unstar 27.7k Fork 5.7k

Code Issues 409 Pull requests 106 Security Insights

Distributed reliable key-value store for the most critical data of a distributed system <https://etcd.io>

etcd raft distributed-systems kubernetes go database key-value consensus distributed-database

15,685 commits 11 branches 176 releases 524 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

Commit	Message	Date
jingyih Merge pull request #11267 from k-ye/fix	... Security: Create etcd security process	Latest commit adb126a 11 hours ago
.github	Security: Create etcd security process	3 months ago
Documentation	doc: add lease time	4 days ago
auth	etcdserver: add check for nil options	2 months ago
client	test: test update for Go 1.12.5 and related changes	4 months ago
clientv3	Merge pull request #11211 from jpibetz/ipv6-endpoints	9 days ago
contrib	test: test update for Go 1.12.5 and related changes	4 months ago
embed	embed: expose ZapLoggerBuilder	last month
etcdctl	doc: add lease time	4 days ago
etcdmain	pkg: handle version env variable	4 days ago
etcdserver	etcdserver: strip patch version in metrics	20 hours ago
functional	*: use Go 1.13.1	19 days ago

## **Worker node 1**

## **Worker node 1**

**Pod Z**

**Pod X**

**Pod Y**

## **Worker node 1**

**Еще одна  
виртуальная  
машина  
с линуксом**

**Pod Z**

**Pod X**

**Pod Y**

## **Worker node 1**

**Еще одна  
виртуальная  
машина  
с линуксом**

**Pod Z**

**Container M**

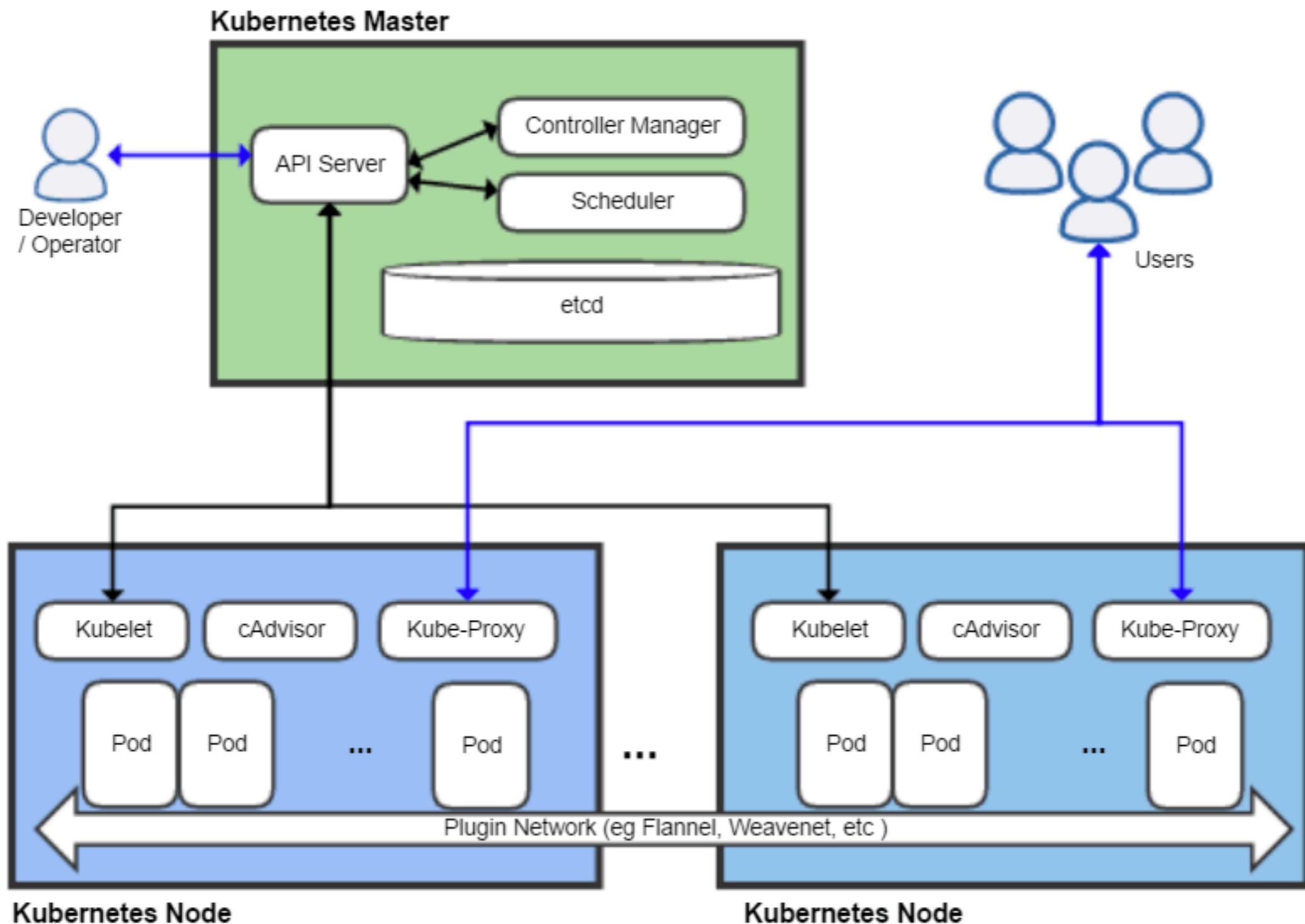
**Pod X**

**Container A**

**Pod Y**

**Container U**

**Container V**



**Где это  
все запущено?**

Azure Kubernetes Service [AKS] +

azure.microsoft.com/en-in/services/kubernetes-service/

Microsoft Azure Contact Sales: 0800-001090 Search My account Portal Sign In

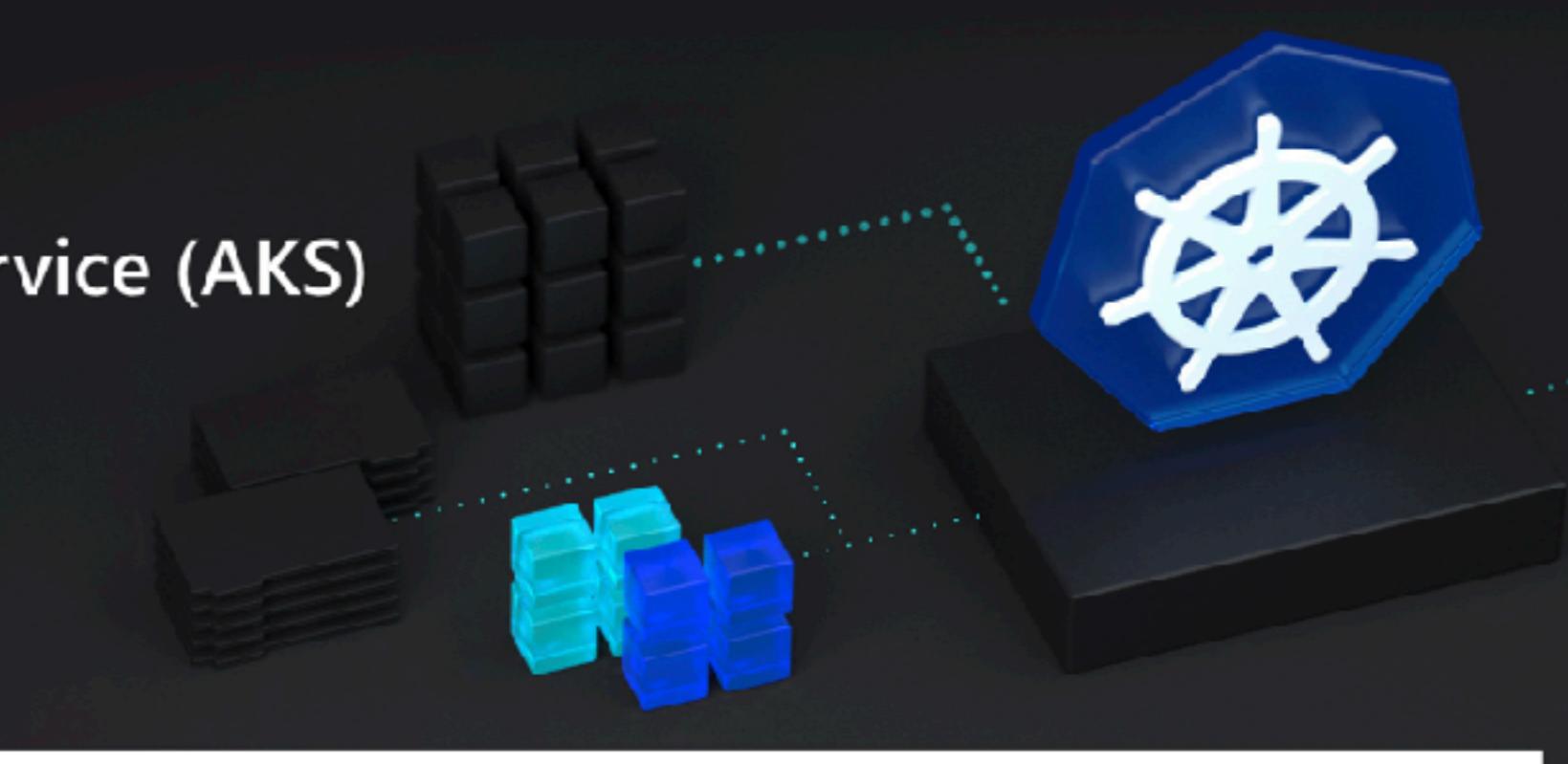
Overview Solutions Products Documentation Pricing Training Marketplace Partners Support Blog More Free account >

Home / Products / Azure Kubernetes Service (AKS)

# Azure Kubernetes Service (AKS)

Highly available, secure and fully managed Kubernetes service

Explore Kubernetes learning path >



Product overview Features Solution architectures Pricing Customer stories Getting started Documentation More >

**Ship faster, operate with ease and scale confidently**

The fully managed Azure Kubernetes Service (AKS) makes deploying and managing containerised applications easy. It offers serverless Kubernetes, an integrated continuous integration and continuous delivery (CI/CD) experience and enterprise-grade security and governance. Unite your development and operations teams on a single platform to rapidly build, deliver and scale applications with confidence.

Amazon EKS - Managed Kub... X +

aws.amazon.com/eks/

Contact Sales Support English My Account Create an AWS Account

Products Solutions Pricing Documentation Learn Partner Network AWS Marketplace Customer Enablement Events Expl Q

Amazon EKS Overview Features Pricing Getting Started FAQs Customers Partners Container Day

# Amazon Elastic Kubernetes Service

Highly available, scalable, and secure Kubernetes service

Start using Amazon EKS

Amazon Elastic Kubernetes Service (Amazon EKS) makes it easy to deploy, manage, and scale containerized applications using [Kubernetes on AWS](#).

Amazon EKS runs the Kubernetes management infrastructure for you across multiple AWS availability zones to eliminate a single point of failure. Amazon EKS is certified Kubernetes conformant so you can use existing tooling and plugins from partners and the Kubernetes community. Applications running on any standard Kubernetes environment are fully compatible and can be easily migrated to Amazon EKS.

Amazon EKS supports both [Windows Containers](#) and Linux Containers to enable all your use cases and workloads.

**Important Links with Amazon EKS**

Here's a list of resources you may find helpful:

[Blog Highlight- Version Lifecycle](#)  
[Read more here >>](#)

[EKS Workshop](#)  
[Try it yourself>>](#)

[Latest Feature Releases](#)  
[Learn More >>](#)

kubernetes/kubeadm: Aggregator for issues filed against kubeadm

github.com/kubernetes/kubeadm

Search or jump to... / Pull requests Issues Marketplace Explore

Watch 125 Star 1.6k Fork 299

Code Issues 77 Pull requests 3 Actions Projects 0 Wiki Security Insights

Aggregator for issues filed against kubeadm

kubernetes installer getting-started building-block conformant best-practice

476 commits 1 branch 0 packages 0 releases 56 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

k8s-ci-robot Merge pull request #1838 from fabriziopandini/fix-calico ... Latest commit 9f5ad82 11 minutes ago

.github	Add a GitHub issue template	3 years ago
docs	remove the-repeat-word	last month
kinder	Merge pull request #1838 from fabriziopandini/fix-calico	11 minutes ago
logos	Update README.md	4 months ago
operator	fix verify	7 days ago
tests/e2e	tests/e2e/manifests: fix missing module name	7 days ago
.gitignore	kinder	7 months ago
CONTRIBUTING.md	contributing.md: fix broken link for testing-pre-releases.md	2 months ago
LICENSE	final commit	3 years ago
OWNERS	update OWNERS for 1.16	22 days ago
README.md	Add definition about kubeadm squash modifications	6 months ago

kubernetes/kubeadm: Aggrega X +

← → C github.com/kubernetes/kubeadm

LICENSE	final commit	3 years ago
OWNERS	update OWNERS for 1.16	22 days ago
README.md	Add definition about kubeadm squash modifications	6 months ago
SECURITY_CONTACTS	Update embargo doc link in SECURITY OWNERS and changes PST to PSC	7 months ago
code-of-conduct.md	Update code-of-conduct.md	2 years ago
go.mod	kubeadm-operator-initial-commit	10 days ago

README.md

# Kubeadm

The purpose of this repo is to aggregate issues filed against the [kubeadm component](#).

## What is Kubeadm ?

Kubeadm is a tool built to provide best-practice "fast paths" for creating Kubernetes clusters. It performs the actions necessary to get a minimum viable, secure cluster up and running in a user friendly way. Kubeadm's scope is limited to the local node filesystem and the Kubernetes API, and it is intended to be a composable building block of higher level tools.

## Common Kubeadm cmdlets

1. **kubeadm init** to bootstrap the initial Kubernetes control-plane node.
2. **kubeadm join** to bootstrap a Kubernetes worker node or an additional control plane node, and join it to the cluster.
3. **kubeadm upgrade** to upgrade a Kubernetes cluster to a newer version.
4. **kubeadm reset** to revert any changes made to this host by kubeadm init or kubeadm join.

Community discussions, contributions, and support

MicroK8s - Fast, Light, Upstream X +

← → C 🔒 microk8s.io

CANONICAL Products Login

MicroK8s Docs Discourse Code Bugs

# Zero-ops Kubernetes for workstations and edge / IoT

A single package of k8s for 42 flavours of Linux. Made for developers, and great for edge, IoT and appliances.

certified



1,976 204

Linux Windows macOS

Get it from the Snap Store

Windows

Run it with Multipass

macOS

Run it with Multipass

kubernetes/minikube: Run Kub... X +

github.com/kubernetes/minikube

Search or jump to... / Pull requests Issues Marketplace Explore

Watch 439 Unstar 16.1k Fork 2.5k

Code Issues 312 Pull requests 45 Actions Projects 1 Wiki Security Insights

Run Kubernetes locally

minikube kubernetes cluster containers go cnmf

6,092 commits 27 branches 0 packages 63 releases 394 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download ▾

tstromberg Merge pull request #5607 from afbjorklund/docker-init ... Latest commit 47f63e4 12 hours ago

.github	Shorten template	15 days ago
cmd	Merge branch 'master' into DELETE_ALL_PROFILES	5 days ago
deploy	Merge pull request #5607 from afbjorklund/docker-init	12 hours ago
docs	Update doc path	last month
enhancements	fix some spelling mistakes	15 days ago
hack	Merge pull request #4780 from marekschwarz/DELETE_ALL_PROFILES	12 hours ago
images/logo	Update screenshot, remove help wanted image	2 months ago
installers	Fix the encoding to LF	2 months ago
pkg	Merge pull request #4780 from marekschwarz/DELETE_ALL_PROFILES	12 hours ago
site	Modify shortlived variable name and improve --addons flag help message	7 days ago
test/integration	Added delete --all to common.sh	7 days ago

kubernetes/minikube: Run Kub... +

github.com/kubernetes/minikube

README.md

# minikube

build passing go report API



minikube implements a local Kubernetes cluster on macOS, Linux, and Windows. minikube's [primary goals](#) are to be the best tool for local Kubernetes application development and to support all Kubernetes features that fit.

```
~ ➔ minikube start
😊 minikube v1.3.1 on Darwin 10.14.6
🔥 Creating hyperkit VM (CPUs=2, Memory=2000MB, Disk=20000MB) ...
🐳 Preparing Kubernetes v1.15.2 on Docker 18.09.8 ...
🚀 Pulling images ...
🚀 Launching Kubernetes ...
⌚ Waiting for: apiserver proxy etcd scheduler controller dns
🏁 Done! kubectl is now configured to use "minikube"
```

## Features

minikube runs the latest stable release of Kubernetes, with support for standard Kubernetes features like:

- [LoadBalancer](#) - using `minikube tunnel`
- Multi-cluster - using `minikube start --cluster`

Google Kubernetes Engine | K X +

← → C cloud.google.com/kubernetes-engine/ ⋮

Google Cloud Why Google Solutions Products Pricing Getting started Docs Support Console

Contact sales

# KUBERNETES ENGINE

Reliable, efficient, and secured way to run Kubernetes clusters

 [VIEW KUBERNETES ENGINE DOCS](#)

[VIEW MY CONSOLE](#)

## Containerized Application Management at Scale

Google Kubernetes Engine (GKE) is a managed, production-ready environment for deploying containerized applications. It brings our latest innovations in developer productivity, resource efficiency, automated operations, and open source flexibility to accelerate your time to market.

Launched in 2015, Kubernetes Engine builds on Google's experience of running services like Gmail and YouTube in containers for over 12 years. Kubernetes Engine allows you to get up and running with [Kubernetes](#) in no time, by completely eliminating the need to install, manage, and operate your own Kubernetes clusters.



The logo is a blue rectangular badge with rounded corners. At the top, the word "certified" is written in white. In the center is a white hexagonal icon containing a white steering wheel. Below the icon, the word "kubernetes" is written in blue.

Kubernetes Engine - StayFocused Inc

console.cloud.google.com/kubernetes/list?project=stayfocused-inc

Google Cloud Platform StayFocused Inc

Kubernetes clusters

+ CREATE CLUSTER + DEPLOY ⏪ REFRESH ⏮ DELETE SHOW INFO PANEL

A Kubernetes cluster is a managed group of VM instances for running containerized applications. [Learn more](#)

Filter by label or name

<input type="checkbox"/>	Name	Location	Cluster size	Total cores	Total memory	Notifications	Labels	<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-1	europe-west1-b	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-10	europe-west4-a	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-11	europe-west4-b	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-12	europe-west4-c	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-13	europe-west6-a	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-14	europe-west6-b	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-2	europe-west1-c	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-3	europe-west1-d	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-4	europe-west2-a	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-5	europe-west2-b	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-6	europe-west2-c	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-7	europe-west3-a	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-8	europe-west3-b	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>
<input checked="" type="checkbox"/>	k8s-sandbox-cluster-9	europe-west3-c	2	2 vCPUs	7.50 GB			<a href="#">Connect</a>	<a href="#"></a>	<a href="#"></a>

Disks – Compute Engine – Stay
+

← → C
console.cloud.google.com/compute/disks?project=stayfocused-inc
☆ 🌐 ⚙️ ⚡ ⚡ 2 ⚡ ⚡

≡ Google Cloud Platform
StayFocused Inc
🔍 🗂️ 🎪 ⚡ ⚡ 2 ⚡ ⚡

Disks
 CREATE DISK
 REFRESH
 DELETE
SHOW INFO PANEL
LEARN

test X
Filter table
X ? ⌂

	<input type="checkbox"/>	Name <span>↑</span>	Status	Type	Size	Zone(s)	In use by	Snapshot schedule	Actions
	<input type="checkbox"/>	test-disk-1	<span>✓</span>	SSD persistent disk	10 GB	europe-west1-b		None	⋮
	<input type="checkbox"/>	test-disk-10	<span>✓</span>	SSD persistent disk	10 GB	europe-west4-a		None	⋮
	<input type="checkbox"/>	test-disk-11	<span>✓</span>	SSD persistent disk	10 GB	europe-west4-b		None	⋮
	<input type="checkbox"/>	test-disk-12	<span>✓</span>	SSD persistent disk	10 GB	europe-west4-c		None	⋮
	<input type="checkbox"/>	test-disk-13	<span>✓</span>	SSD persistent disk	10 GB	europe-west6-a		None	⋮
	<input type="checkbox"/>	test-disk-14	<span>✓</span>	SSD persistent disk	10 GB	europe-west6-b		None	⋮
	<input type="checkbox"/>	test-disk-2	<span>✓</span>	SSD persistent disk	10 GB	europe-west1-c		None	⋮
	<input type="checkbox"/>	test-disk-3	<span>✓</span>	SSD persistent disk	10 GB	europe-west1-d		None	⋮
	<input type="checkbox"/>	test-disk-4	<span>✓</span>	SSD persistent disk	10 GB	europe-west2-a		None	⋮
	<input type="checkbox"/>	test-disk-5	<span>✓</span>	SSD persistent disk	10 GB	europe-west2-b		None	⋮
	<input type="checkbox"/>	test-disk-6	<span>✓</span>	SSD persistent disk	10 GB	europe-west2-c		None	⋮
	<input type="checkbox"/>	test-disk-7	<span>✓</span>	SSD persistent disk	10 GB	europe-west3-a		None	⋮
	<input type="checkbox"/>	test-disk-8	<span>✓</span>	SSD persistent disk	10 GB	europe-west3-b		None	⋮
	<input type="checkbox"/>	test-disk-9	<span>✓</span>	SSD persistent disk	10 GB	europe-west3-c		None	⋮

Rows per page:
50 ▾
1 – 14 of 14
< >

W Императивное программиро X +

← → C ru.wikipedia.org/wiki/Императивное\_программирование

Вы не представились системе Обсуждение Вклад Создать учётную запись Войти

Статья Обсуждение Читать Править Править код История Искать в Википедии



# Императивное программирование

## Википедия

Свободная энциклопедия

Заглавная страница

Рубрикация

Указатель А – Я

Избранные статьи

Случайная статья

Текущие события

Участие

Сообщить об ошибке

Сообщество

Форум

Свежие правки

Новые страницы

Справка

Пожертвовать

Инструменты

Ссылки сюда

Связанные правки

Служебные страницы

Постоянная ссылка

Сведения о странице

Цитировать страницу

Печать/экспорт

Создать книгу

Скачать как PDF

Версия для печати

В других проектах

Элемент Викиданных

Материал из Википедии – свободной энциклопедии

[ править | править код ]

Императивное программирование – это парадигма программирования (стиль написания исходного кода компьютерной программы), для которой характерно следующее:

- в исходном коде программы записываются инструкции (команды);
- инструкции должны выполняться последовательно;
- данные, получаемые при выполнении предыдущих инструкций, могут читаться из памяти последующими инструкциями;
- данные, полученные при выполнении инструкции, могут записываться в память.

Императивная программа похожа на приказы (англ. *imperative* — приказ, повелительное наклонение), выражаемые повелительным наклонением в естественных языках, то есть представляют собой последовательность команд, которые должен выполнить компьютер.

При императивном подходе к составлению кода (в отличие от функционального подхода, относящегося к декларативной парадигме) широко используется присваивание. Наличие операторов присваивания увеличивает сложность модели вычислений и делает императивные программы подверженными специфическим ошибкам, не встречающимся при функциональном подходе<sup>[1]</sup>.

Основные черты императивных языков:

- использование именованных переменных;
- использование оператора присваивания;
- использование составных выражений;
- использование подпрограмм;
- и др.

## Парадигмы программирования

- Императивная  
(контрастирует с декларативной)
  - Процедурная
  - Структурная
  - Аспектно-ориентированная
  - Объектно-ориентированная
    - Агентно-ориентированная
    - Компонентно-ориентированная
    - Прототипно-ориентированная
    - Обобщённое программирование
- Декларативная  
(контрастирует с императивной)
  - Чистота языка
  - Чистота функции
  - Функциональная
    - В терминах Роджерса-модели
    - Аппликативная
    - Комбинаторная
    - Бесточечная
      - (чистая конкатенативная)
  - Логическая
    - Ограничениями
- Конкатенативная
- Векторная<sup>[er]</sup>
- Метапрограммирование
  - Языково-ориентированная
  - Предметно-ориентированная
  - Пользователями<sup>[er]</sup>
- Автоматизация процесса

The screenshot shows a web browser window with the following details:

- Title Bar:** Императивное программирование
- Address Bar:** ru.wikipedia.org/wiki/Императивное\_программирование
- User Status:** Вы не представились системе
- Page Header:** Статья, Обсуждение, Читать, Править, Править код, История, Искать в Википедии
- Page Content:** The main content area displays the title "Императивное программирование" and a summary paragraph about the paradigm.
- Sidebar:** On the left, there is a sidebar with the Wikipedia logo and various navigation links such as "Заглавная страница", "Рубрикация", "Указатель А – Я", etc.

# Императивное программирование

Материал из Википедии — свободной энциклопедии

[ править | править код ]

Императивное программирование — это парадигма программирования (стиль написания исходного кода компьютерной программы), для которой характерно следующее:

- в исходном коде программы записываются инструкции (команды);
- инструкции должны выполняться последовательно;
- данные, получаемые при выполнении предыдущих инструкций, могут извлекаться из памяти последующими инструкциями;
- данные, полученные при выполнении инструкции, могут меняться в память.

# Программист пишет список инструкций

Императивная программа похожа на приказы (англ. *imperative* — приказ, повелительное наклонение), выражаемые повелительным наклонением в естественных языках, то есть представляют собой последовательность команд, которые должен выполнить компьютер.

При императивном подходе к составлению кода (в отличие от функционального подхода, относящегося к декларативной парадигме) широко используется присваивание. Наличие операторов присваивания увеличивает сложность модели вычислений и делает императивные программы подверженными специфическим ошибкам, не встречающимся при функциональном подходе<sup>[1]</sup>.

Основные черты императивных языков:

- использование именованных переменных;
- использование оператора присваивания;
- использование составных выражений;
- использование подпрограмм;
- и др.

## Парадигмы программирования

- Императивная (контрастирует с декларативной)
  - Процедурная
  - Структурная
  - Аспектно-ориентированная
  - Объектно-ориентированная
  - Агентно-ориентированная
  - Компонентно-ориентированная
  - Прототипно-ориентированная
  - Обобщённое программирование
- Декларативная (контрастирует с императивной)
  - Чистота языка
  - Чистота функции
  - Функциональная
    - В терминах Роджер-машины
    - Аппликативная
    - Комбинаторная
    - Бесточечная
      - (чистая конкатенативная)
  - Логическая
    - Ограничениями
- Конкатенативная
- Векторная<sup>[er]</sup>
- Метапрограммирование
  - Языково-ориентированная
  - Предметно-ориентированная
  - Пользователями<sup>[er]</sup>
- Автоматизация процесса

W Декларативное программиро X +

← → C ru.wikipedia.org/wiki/Декларативное\_программирование

Вы не представились системе Обсуждение Вклад Создать учётную запись Войти

Статья Обсуждение Читать Текущая версия Править Править код История Искать в Википедии



# Декларативное программирование

## Википедия

Свободная энциклопедия

[Заглавная страница](#)

[Рубрикация](#)

[Указатель А – Я](#)

[Избранные статьи](#)

[Случайная статья](#)

[Текущие события](#)

[Участие](#)

[Сообщить об ошибке](#)

[Сообщество](#)

[Форум](#)

[Свежие правки](#)

[Новые страницы](#)

[Справка](#)

[Пожертвовать](#)

[Инструменты](#)

[Ссылки сюда](#)

[Связанные правки](#)

[Служебные страницы](#)

[Постоянная ссылка](#)

[Сведения о странице](#)

[Цитировать страницу](#)

[Печать/экспорт](#)

[Создать книгу](#)

[Скачать как PDF](#)

[Версия для печати](#)

[В других проектах](#)

[Викисклад](#)

Материал из Википедии — свободной энциклопедии

[ [править](#) | [править код](#) ]

Текущая версия страницы пока [не проверялась](#) опытными участниками и может значительно отличаться от [версии](#), проверенной 23 октября 2017; проверки требуют [2 правки](#).

**Декларативное программирование** — это [парадигма программирования](#), в которой задаётся [спецификация](#) решения задачи, то есть описывается, что представляет собой проблема и ожидаемый результат. Противоположностью декларативного является [императивное программирование](#), описывающее на том или ином уровне детализации, [как решить задачу и представить результат](#). В общем и целом, декларативное программирование идет от человека к машине, тогда как императивное — от машины к человеку. Как следствие, декларативные программы не используют понятия состояния, то есть не содержат [переменных](#) и операторов [присваивания](#) (см. также [ссылочная прозрачность](#)).

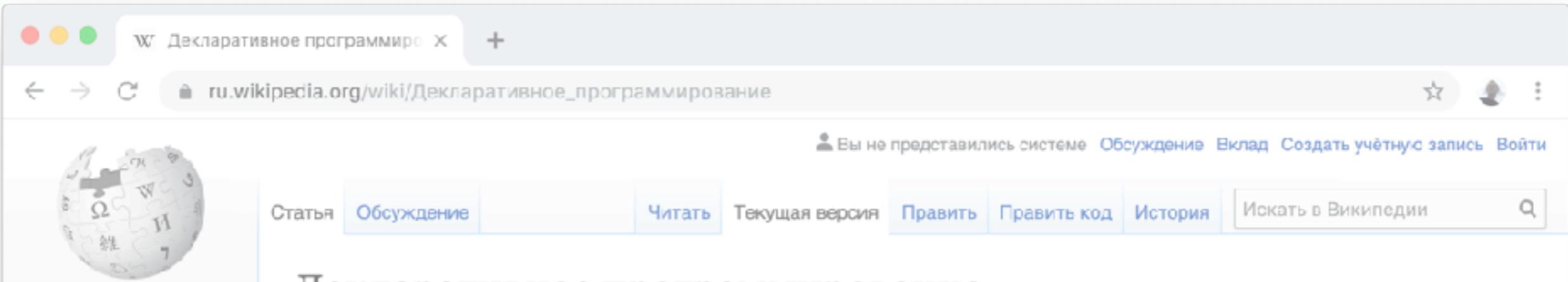
Наиболее близким к «чисто декларативному» программированию является [написание исполнимых спецификаций](#) (см. [соответствие Карри – Ховарда](#)). В этом случае программа представляет собой [формальную теорию](#), а её выполнение является одновременно автоматическим доказательством этой теории, и характерные для императивного программирования составляющие процесса разработки ([проектирование](#), [рефакторинг](#), [стладка](#) и др.) в этом случае исключаются: программа проектирует и доказывает сама себя.

К подвидам декларативного программирования также зачастую относят [функциональное и логическое программирование](#) — несмотря на то, что программы на таких языках нередко содержат алгоритмические составляющие, архитектура в императивном понимании (как нечто отдельное от кодирования) в них также отсутствует: схема программы является непосредственно частью исполняемого кода<sup>[1]</sup>.

На повышение уровня декларативности нацелен [языково-ориентированное программирование](#).

## Парадигмы программирования

- **Императивная**  
(контрастирует с [декларативной](#))
  - Процедурная
  - Структурная
  - Аспектно-ориентированная
  - Объектно-ориентированная
    - Агентно-ориентированная
    - Компонентно-ориентированная
    - Прототипно-ориентированная
  - Обобщённое программирование
- **Декларативная**  
(контрастирует с [императивной](#))
  - Чистота языка
  - Чистота функции
  - Функциональная
    - В терминах Рейфал-машины
    - Аппликативная
    - Комбинаторная
    - Бесточечная
      - (чистая конкатенативная)
    - Логическая
    - Границениями
- Конкатенативная
- Векторная<sup>[er]</sup>
- Метапрограммирование
  - Языково-ориентированная
  - Предметно-ориентированная



The screenshot shows a web browser window with the title bar "Декларативное программиро" and the address bar "ru.wikipedia.org/wiki/Декларативное\_программирование". The page content is in Russian. At the top right, there is a user message: "Вы не представились системе Обсуждение Вклад Создать учётную запись Войти". Below the header are navigation tabs: "Статья" (Article), "Обсуждение" (Discussion), "Читать" (Read), "Текущая версия" (Current version), "Править" (Edit), "Править код" (Edit code), "История" (History), and a search bar "Искать в Википедии" (Search in Wikipedia) with a magnifying glass icon.



## Википедия

Свободная энциклопедия

[Заглавная страница](#)

[Рубрикация](#)

[Указатель А — Я](#)

[Избранные статьи](#)

[Случайная статья](#)

[Текущие события](#)

[Участие](#)

[Сообщить об ошибке](#)

[Сообщество](#)

[Форум](#)

[Свежие правки](#)

[Новые страницы](#)

[Справка](#)

[Пожертвовать](#)

[Инструменты](#)

[Ссылки сюда](#)

[Связанные правки](#)

[Служебные страницы](#)

[Постоянная ссылка](#)

[Сведения о странице](#)

[Цитировать страницу](#)

[Печать/экспорт](#)

[Создать книгу](#)

[Скачать как PDF](#)

[Версия для печати](#)

[В других проектах](#)

[Викисклад](#)

# Декларативное программирование

Материал из Википедии — свободной энциклопедии

[ [править](#) | [править код](#) ]

Текущая версия страницы пока [не проверялась](#) опытными участниками и может значительно отличаться от [версии](#), проверенной 23 октября 2017; проверки требуют [2 правки](#).

Декларативное программирование — это [парадигма программирования](#), в которой задаётся [спецификация](#) решения задачи, то есть описывается, что представляет собой проблема и ожидаемый результат. Противоположностью декларативного программирования является императивное, которое определяет, как решить задачу и представить результат. В общем и целом, декларативное программирование идет от человека к машине, тогда как императивное — от машины к человеку. Как правило, декларативные программы не используют понятия состояний, то есть не содержат [временных](#) и операторов [присваивания](#) (см. также [ссылочная прозрачность](#)).

Наиболее близким к «чисто декларативному» программированию является [написание исполнимых спецификаций](#) (см. [соответствие Карри — Ховарда](#)). В этом случае программа представляет собой [формальную теорию](#), а её выполнение является одновременно автоматическим доказательством этой теории, и характерные для императивного программирования составляющие процесса разработки ([проектирование](#), [рефакторинг](#), [стадка](#) и др.) в этом случае исключаются: программа проектирует и доказывает сама себя.

К подвидам декларативного программирования также зачастую относят [функциональное](#) и [логическое](#) программирование — несмотря на то, что программы на таких языках нередко содержат алгоритмические составляющие, архитектура в императивном понимании (как нечто отдельное от кодирования) в них также отсутствует: схема программы является непосредственно частью исполняемого кода<sup>[1]</sup>.

На повышение уровня декларативности нацелен [языково-ориентированное](#) программирование.

## Парадигмы программирования

- Императивная  
(контрастирует с декларативной)
  - Центральная
  - Структурная
  - Аспектно-ориентированная
  - Объектно-ориентированная
  - Агентно-ориентированная
  - Компонентно-ориентированная
  - Прототипно-ориентированная
  - Обобщённое программирование
- Декларативная  
(контрастирует с императивной)
  - Чистота языка
  - Чистота функции
  - Функциональная
    - В терминах Рейфал-машины
    - Аппликативная
    - Комбинаторная
    - Бесточечная
      - (чистая конкатенативная)
    - Логическая
    - Границениями
- Конкатенативная
- Векторная<sup>[er]</sup>
- Метапрограммирование
  - Языково-ориентированная
  - Предметно-ориентированная

# Master node

## Controllers

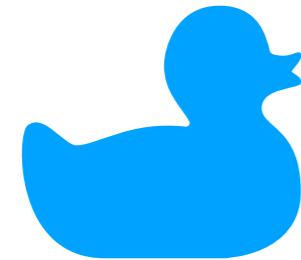
Программы,  
которые  
следят за  
объектами

## REST API

веб-сервер

## etcd

key-value база  
данных



kubectl / curl

## Master node

REST API

веб-сервер

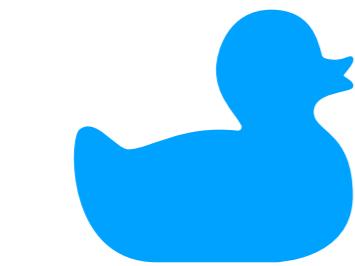
etcd

key-value база  
данных

Controllers

Программы,  
которые  
следят за  
объектами

## Master node



kubectl / curl

REST API

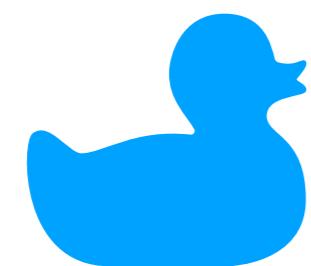
веб-сервер

etcd

key-value база  
данных

Controllers

Программы,  
которые  
следят за  
объектами



kubectl / curl

## Master node

REST API

веб-сервер

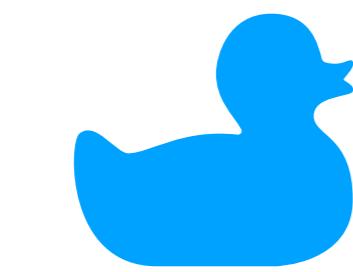
etcd

key-value база  
данных

Controllers

Программы,  
которые  
следят за  
объектами

## Master node



kubectl / curl

REST API

веб-сервер

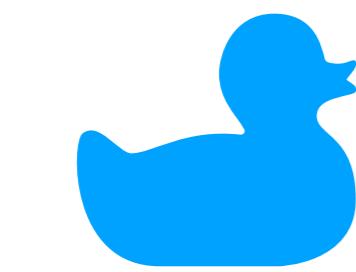
etcd

key-value база  
данных

Controllers

Программы,  
которые  
следят за  
объектами

## Master node



kubectl / curl

### REST API

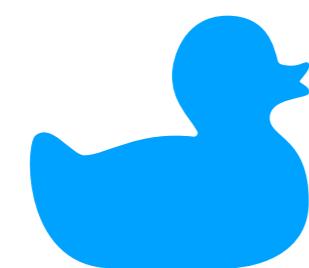
веб-сервер

### etcd

key-value база  
данных

### Controllers

Программы,  
которые  
следят за  
объектами



kubectl / curl

## Master node

### REST API

веб-сервер

### Controllers

Программы,  
которые  
следят за  
объектами

### etcd

key-value база  
данных





curl / telnet

## Master node

### REST API

веб-сервер

### Controllers

Программы,  
которые  
следят за  
объектами

### etcd

key-value база  
данных

## Worker node





curl / telnet

## Master node

### REST API

веб-сервер

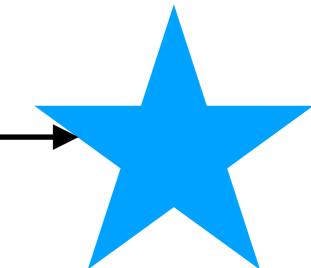
### Controllers

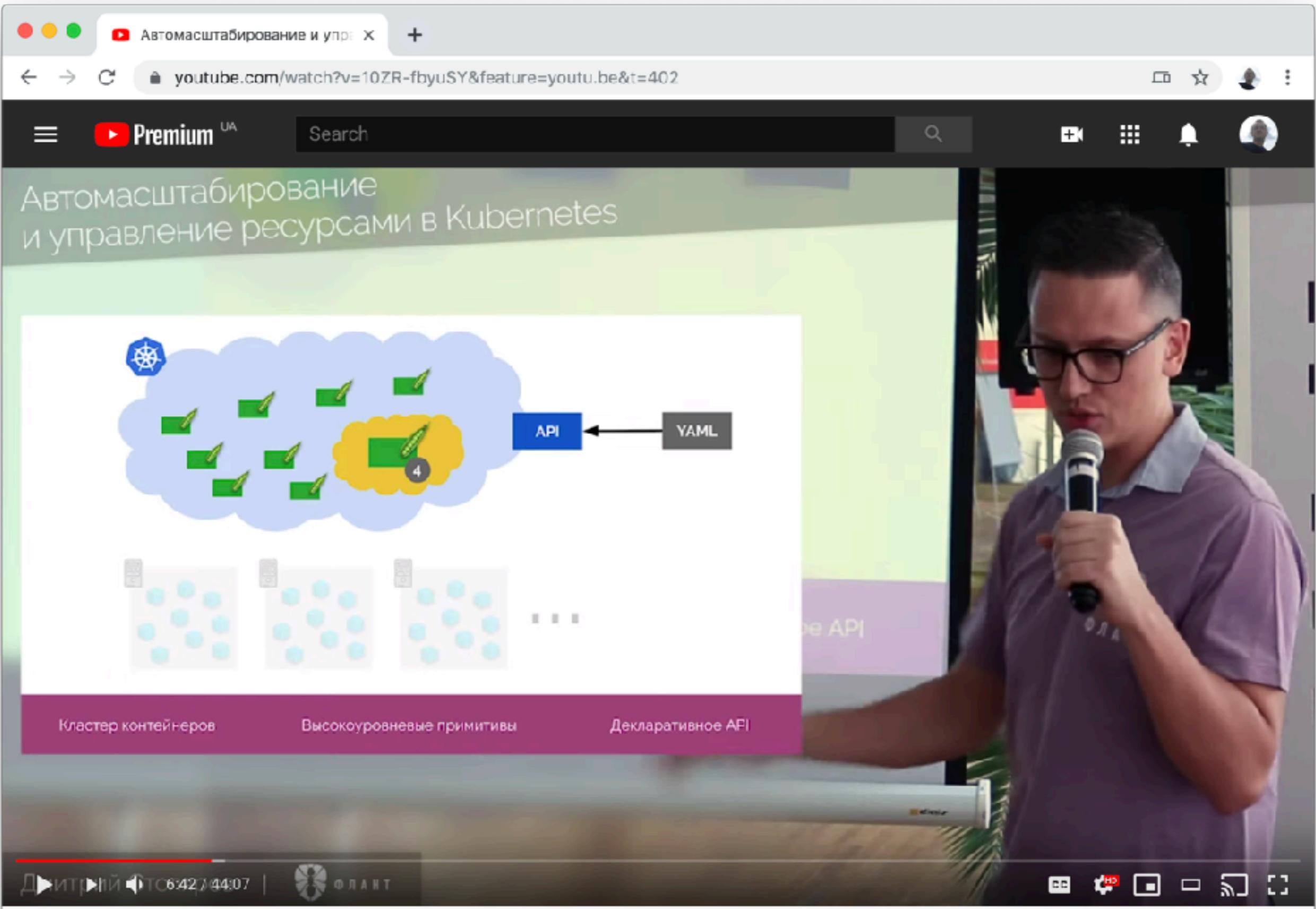
Программы,  
которые  
следят за  
объектами

### etcd

key-value база  
данных

## Worker node





Автомасштабирование и управление ресурсами в Kubernetes (Дмитрий Столяров, Флант)

3,063 views • Jul 16, 2019

222

2

SHARE

SAVE

Up next



Мониторинг и Kubernetes  
(Дмитрий Столяров,...  
Флант)

AUTOPLAY



# **Kubernetes**

**Kubernetes**

**Docker**

**Kubernetes**

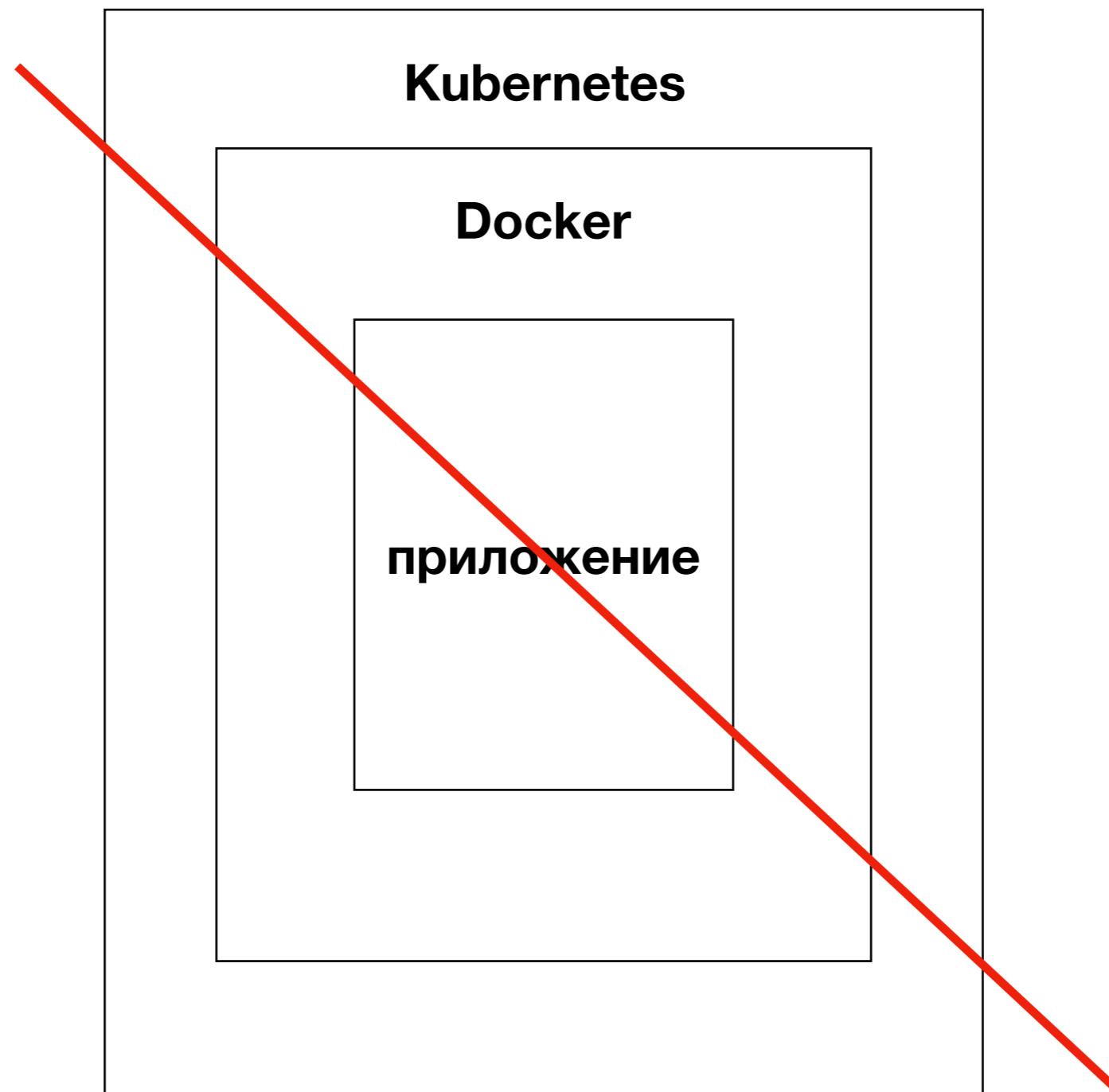
**Docker**

**приложение**

**Kubernetes**

**Docker**

**приложение**



## **VM aka kubernetes worker**

**Docker**

**приложение**

## **VM aka kubernetes worker**

**kubelet**

**Docker**

**приложение**

**приложение**

**приложение**

# 2. Getting around with `kubectl`

kubernetes/kubectl: Issue tracker and mirror of kubectl code

github.com/kubernetes/kubectl

Search or jump to... Pull requests Issues Marketplace Explore

kubernetes / kubectl Watch 55 Unstar 723 Fork 216

Code Issues 132 Pull requests 0 Actions Projects 3 Wiki Security Insights

Issue tracker and mirror of kubectl code

k8s-sig-cli k8s-staging

1,053 commits 6 branches 0 packages 70 releases 98 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download ▾

k8s-publishing-bot Merge pull request #85293 from huffmanca/include\_fstype\_csi Latest commit a3a0d01 23 hours ago

.github	Adds staging directory for kubectl code	6 months ago
Godeps	Merge pull request #85293 from huffmanca/include_fstype_csi	12 hours ago
docs	fix 1-12 number urls	14 days ago
images	Adds kubectl logo images	6 months ago
pkg	Included FSType in CSI volumes	20 days ago
testdata	Rename test/data directory to testdata	last month
CONTRIBUTING.md	Adds staging directory for kubectl code	6 months ago
LICENSE	Adds staging directory for kubectl code	6 months ago
OWNERS	Adds staging directory for kubectl code	6 months ago
README.md	Adds staging directory for kubectl code	6 months ago
SECURITY_CONTACTS	Update security contacts for kubectl	3 months ago

Highest Voted 'kubectl' Questions

← → C stackoverflow.com/questions/tagged/kubectl

star user profile 7,984 10 47 81

stackoverflow Products [kubectl]

## Questions tagged [kubectl]

kubectl is a command line interface for running commands against Kubernetes clusters

Watch Tag Ignore Tag Learn more... Improve tag info Top users Synonyms

1,287 questions Newest Active Bountied Unanswered More Filter

**187** [kubectl apply vs kubectl create?](#)

What I understood by the documentation is that kubectl apply = kubectl create + kubectl replace. Reference My understanding is that if I want create new k8s resource in the cluster I should use ...

6 answers 58k views

votes

6 answers

6 kubernetes 6 kubectl

asked Nov 18 '17 at 18:05 Suresh Vishnoi 5,518 3 18 35

**101** [Kubernetes pod gets recreated when deleted](#)

I have started pods with command \$ kubectl run busybox --image=busybox --restart=Never --tty -i --generator=run-pod/v1 Something went wrong, and now I can't delete this Pod. I tried using the ...

13 answers 53k views

votes

13 answers

13 kubernetes 13 kubectl

asked Nov 18 '17 at 21:24 yman 608 2 5 5

**64** [Restart container within pod](#)

I have a pod test-1495806908-xr5jn with 2 containers. I'd like to restart one of them called container-test. Is it possible to restart a single container within a pod and how? If not, how do I restart ...

9 answers 134k views

votes

9 answers

9 kubernetes 9 kubectl

asked Sep 8 '17 at 19:33 s5s 2,869 11 47 89

Blog

The Stack Overflow Podcast is Back!

Coding Salaries in 2019: Updating the Stack Overflow Salary Calculator

Featured on Meta

Official FAQ on gender pronouns and Code of Conduct changes

Threshold experiment results: closing, editing and reopening all become more...

I'm resigning as a Stack Overflow Community Elected Moderator

Custom Filters

Elixir - not answered

Create a custom filter

Watched Tags edit

concourse docker elasticsearch

elixir git kubernetes

phoenix-framework postgresql sql

**Demo / Практика**

**Работа с kubectl**



# Config



```
mkdir ~/.kube
```

```
cp ~/.kube/config ~/.kube/config-backup
```

```
curl https://k8s-workshop-december.storage.googleapis.com/config-x > ~/.kube/config
```

```
kubectl get nodes
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
    insecure-skip-tls-verify: true
    server: https://35.205.141.48
    name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
    cluster: sandbox
    namespace: default
    user: k8s-user
    name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48 ← Адрес мастер ноды  
кластера
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2 ← HTTP basic auth
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFEw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

Множественное число

```
apiVersion: v1
kind: Config
clusters:
- cluster:
  insecure-skip-tls-verify: true
  server: https://35.205.141.48
  name: sandbox
users:
- name: k8s-user
  user:
    username: master-user-2
    password: KMJFw4c7VYUjf0VVweB0Gtgdf0RhZk6C
contexts:
- context:
  cluster: sandbox
  namespace: default
  user: k8s-user
  name: sandbox
current-context: sandbox
```

Organizing Cluster Access Using kubeconfig Files

kubernetes.io/docs/concepts/configuration/organize-cluster-access-kubeconfig/

**kubernetes**

Documentation Blog Partners Community Case Studies English v1.16

# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE Search

## Concepts

- ▶ Overview
- ▶ Cluster Architecture
- ▶ Containers
- ▶ Workloads
- ▶ Services, Load Balancing, and Networking
- ▶ Storage
- ▼ Configuration

### Configuration Best Practices

Resource Bin Packing for Extended Resources

Managing Compute Resources for Containers

Pod Overhead

Assigning Pods to Nodes

Taints and Tolerations

Secrets

Organizing Cluster Access Using  
kubeconfig Files

# Organizing Cluster Access Using kubeconfig Files



Use kubeconfig files to organize information about clusters, users, namespaces, and authentication mechanisms. The `kubectl` command-line tool uses kubeconfig files to find the information it needs to choose a cluster and communicate with the API server of a cluster.

**Note:** A file that is used to configure access to clusters is called a *kubeconfig file*. This is a generic way of referring to configuration files. It does not mean that there is a file named `kubeconfig`.

By default, `kubectl` looks for a file named `config` in the `$HOME/.kube` directory. You can specify other kubeconfig files by setting the `KUBECONFIG` environment variable or by setting the `--kubeconfig` flag.

# **3. First object**



**Первые шаги**

# **Что такое Pod?**





©Garry Henkel

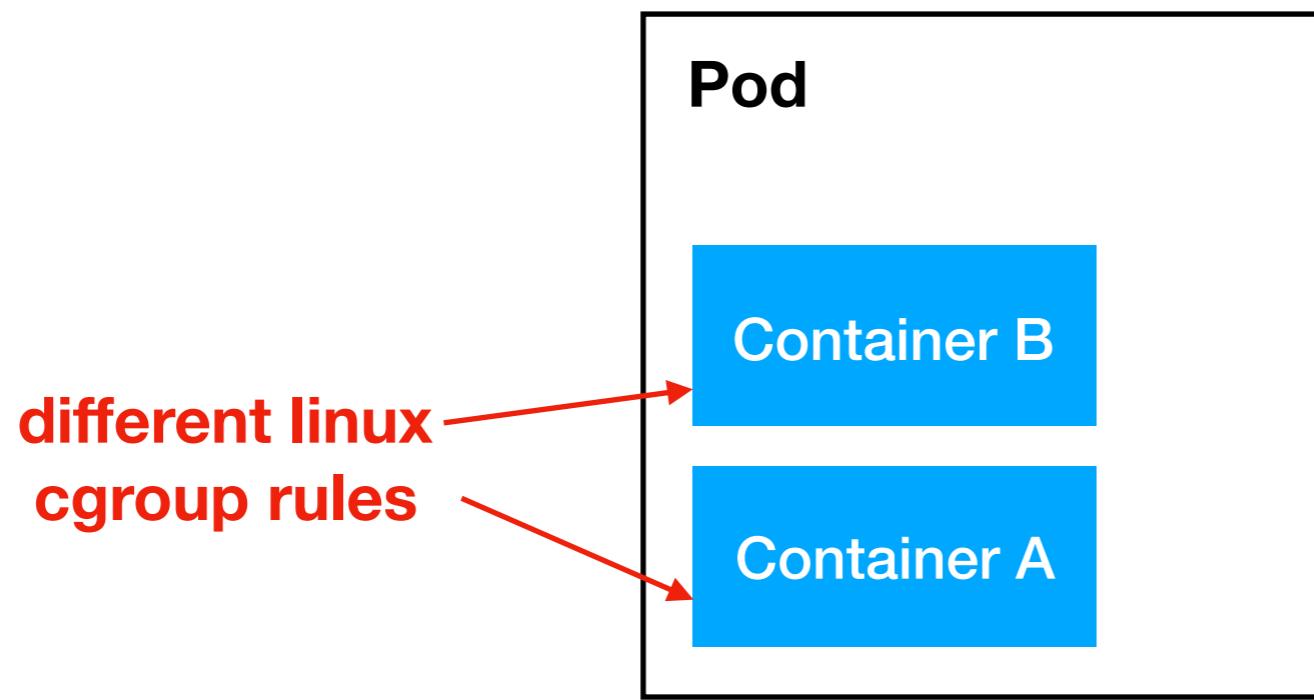
**Pod**

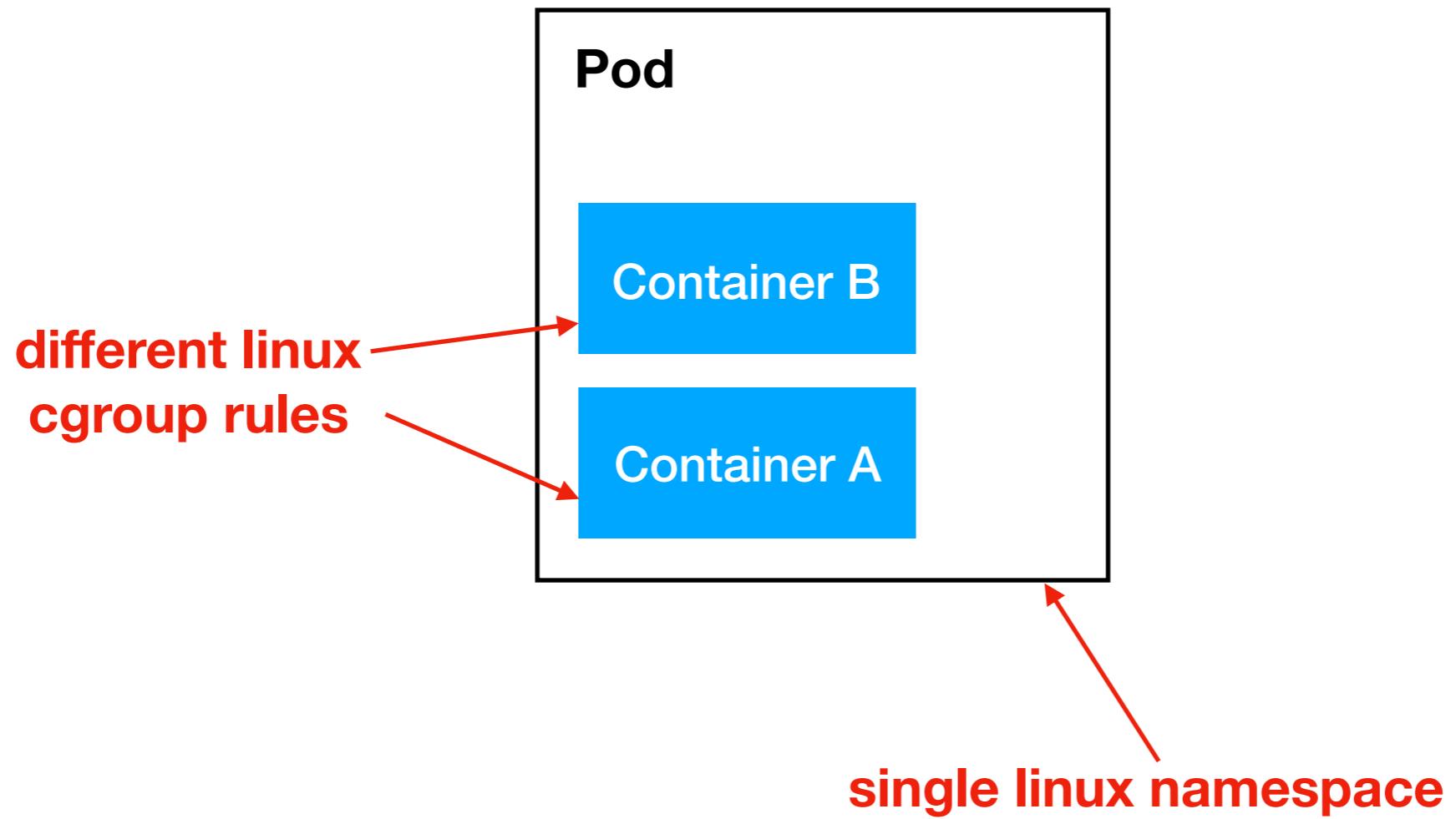
Container A

**Pod**

Container B

Container A





```
apiVersion: v1
kind: Pod
metadata:
  name: my-first-pod
spec:
  containers:
    - name: my-first-container
      image: nginx
```

apiVersion: v1 ← Версия объекта

kind: Pod ← Тип объекта

metadata:

    name: my-first-pod ← Имя объекта

spec:

    containers:

- name: my-first-container  
        image: nginx

Спецификация объекта

my-first-pod.yaml

```
apiVersion: v1
kind: Pod
metadata:
  name: my-first-pod
spec:
  containers:
    - name: my-first-container
      image: nginx
```



kubectl apply -f my-first-pod.yaml

```
apiVersion: v1
kind: Pod
metadata:
  name: my-first-pod
spec:
  containers:
    - name: my-first-container
      image: nginx
```

Множественное число



**Множественное число**

```
apiVersion: v1
kind: Pod
metadata:
  name: my-first-pod
spec:
  containers:
    - name: my-first-container
      image: nginx
    - name: my-second-container
      image: postgres
    - name: another-container
```

**Demo / Практика**

**Работа с подой**

Pods - Kubernetes    X    +

kubernetes.io/docs/concepts/workloads/pods/pod/

 **kubernetes**

Documentation Blog Partners Community Case Studies English v1.16

# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE Search

## Concepts

- ▶ Overview
- ▶ Cluster Architecture
- ▶ Containers
- ▼ Workloads
  - ▼ Pods

Pod Overview

Pods

Pod Lifecycle

Init Containers

Pod Preset

Pod Topology Spread Constraints

Disruptions

Ephemeral Containers

▶ Controllers

▶ Services, Load Balancing, and Networking

▶ Storage

## Pods

Pods are the smallest deployable units of computing that can be created and managed in Kubernetes.

- [What is a Pod?](#)
- [Motivation for Pods](#)
- [Uses of pods](#)
- [Alternatives considered](#)
- [Durability of pods \(or lack thereof\)](#)
- [Termination of Pods](#)
- [Privileged mode for pod containers](#)
- [API Object](#)

### What is a Pod?

A Pod (as in a pod of whales or pea pod) is a group of one or more containers (such as Docker containers), with shared storage/network, and a specification for how to run the containers.

- \* `kubectl delete -f my-first-pod.yaml`

(or alternatively)

```
kubectl delete pod my-first-pod
```

- \* `kubectl apply -f my-first-pod.yaml`

- \* `kubectl exec my-first-pod -- cat /my-file.txt`



**Как хранить состояние между  
перезапусками поды?**

# **4. Basic objects**



# PersistentVolume



# PersistentVolumeClaim



```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: pv-for-our-tests
spec:
  gcePersistentDisk:
    fsType: ext4
    pdName: test-disk-0
  capacity:
    storage: 10Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: my-ssd
```

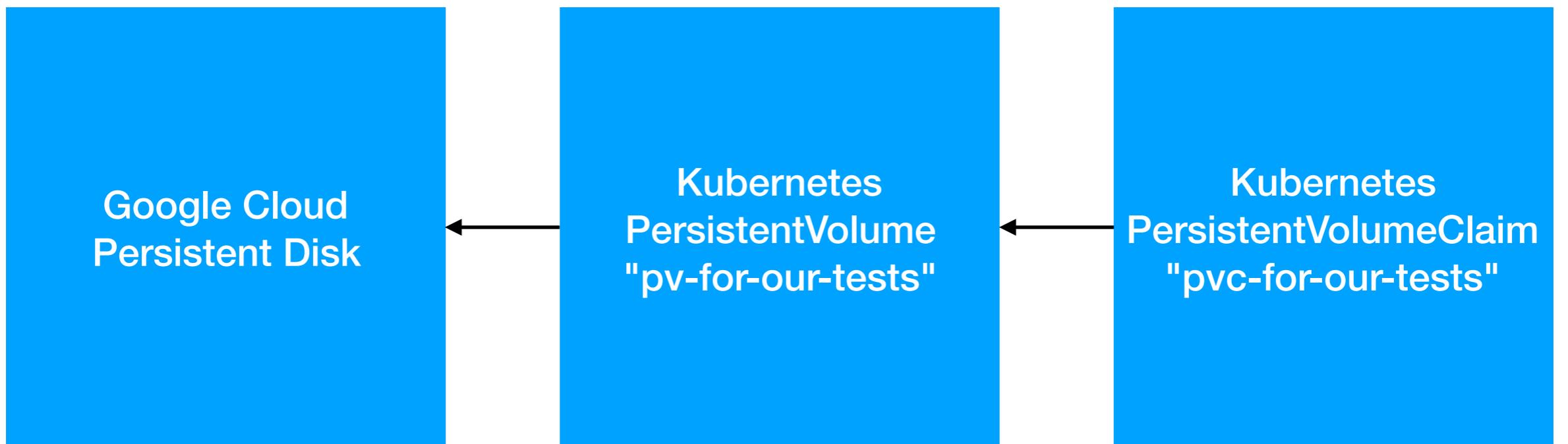
```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: pv-for-our-tests
spec:
  gcePersistentDisk:
    fsType: ext4
    pdName: test-disk-0
  capacity:
    storage: 10Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: my-ssd
```

Имя объекта

Настоящий диск  
в датацентре гугла  
(создан до  
начала воркшопа)

Размер диска

```
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: pvc-for-our-tests
spec:
  resources:
    requests:
      storage: 10Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: my-ssd
```



```
---
apiVersion: v1
kind: PersistentVolume
metadata:
  name: pv-for-our-tests
spec:
  gcePersistentDisk:
    fsType: ext4
    pdName: test-disk-0
  capacity:
    storage: 10Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: my-ssd
---
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: pvc-for-our-tests
spec:
  resources:
    requests:
      storage: 10Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: my-ssd
```

## my-disk-stuff.yaml

```
---
apiVersion: v1
kind: PersistentVolume
metadata:
  name: pv-for-our-tests
spec:
  gcePersistentDisk:
    fsType: ext4
    pdName: test-disk-0
  capacity:
    storage: 10Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: my-ssd
---
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: pvc-for-our-tests
spec:
  resources:
    requests:
      storage: 10Gi
  accessModes:
  - ReadWriteOnce
  storageClassName: my-ssd
```



kubectl apply -f my-disk-stuff.yaml

```
apiVersion: v1
kind: Pod
metadata:
  name: my-first-pod
spec:
  containers:
    - name: my-first-container
      image: nginx
```

```
apiVersion: v1
kind: Pod
metadata:
  name: my-first-pod
spec:
  containers:
    - name: my-first-container
      image: nginx
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```

```
apiVersion: v1
kind: Pod
metadata:
  name: my-first-pod
spec:
  containers:
    - name: my-first-container
      image: nginx
      volumeMounts:
        - name: my-data
          mountPath: "/my/path"
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```

```
apiVersion: v1
kind: Pod
metadata:
  name: my-first-pod
spec:
  containers:
    - name: my-first-container
      image: nginx
  volumeMounts:
    - name: my-data
      mountPath: "/my/path"
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```

```
watch kubectl get pod,pv,pvc -o wide
```

# **Demo / Практика**

**Создаем РV и РVC,  
привязываем РVC к поде**



# Persistent Volumes

Each PV contains a spec and status, which is the specification and status of the volume.

```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: pv0003
spec:
  capacity:
    storage: 5Gi
  volumeMode: Filesystem
  accessModes:
    - ReadWriteOnce
  persistentVolumeReclaimPolicy: Recycle
  storageClassName: slow
  mountOptions:
    - hard
    - nfsvers=4.1
  nfs:
    path: /tmp
    server: 172.17.0.2
```

## Capacity

Generally, a PV will have a specific storage capacity. This is set using the PV's `capacity` attribute. See the Kubernetes [Resource](#)



# PersistentVolumeClaims

Each PVC contains a spec and status, which is the specification and status of the claim.

```
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: myclaim
spec:
  accessModes:
    - ReadWriteOnce
  volumeMode: Filesystem
  resources:
    requests:
      storage: 8Gi
  storageClassName: slow
  selector:
    matchLabels:
      release: "stable"
    matchExpressions:
      - {key: environment, operator: In, values: [dev]}
```

## Access Modes

Claims use the same conventions as volumes when requesting storage with specific access modes.

## Volume Modes



**Pod**

**Episode 2**

```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
    - name: db
      image: postgres:12.0-alpine
```

```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
    - name: db
      image: postgres:12.0-alpine
```

```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
    - name: db
      image: postgres:12.0-alpine
      env:
        - name: POSTGRES_DB
          value: my-test-db
  volumeMounts:
    - name: my-data
      mountPath: /var/lib/postgresql/data
      subPath: postgresql-folder
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```

```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
    - name: db
      image: postgres:12.0-alpine
      env:
        - name: POSTGRES_DB
          value: my-test-db
  volumeMounts:
    - name: my-data
      mountPath: /var/lib/postgresql/data
      subPath: postgresql-folder
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```

postgres - Docker Hub    +

hub.docker.com/\_/postgres?tab=description

 docker hub  Explore Sign In Pricing Get Started

# postgres ☆

Docker Official Images

The PostgreSQL object-relational database system provides reliability and data integrity.

10M+ 

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

Official Image

Linux - PowerPC 64 LE ( latest ) 

Copy and paste to pull this image

`docker pull postgres` 

[View Available Tags](#)

**DESCRIPTION** **REVIEWS** **TAGS**

 Please log in to write a review of this product.

## Supported tags and respective Dockerfile links

- 12.0, 12, latest
- 12.0-alpine, 12-alpine, alpine

A screenshot of a web browser window. The title bar says "postgres - Docker Hub". The address bar shows "hub.docker.com/\_/postgres?tab=description". The main content area has a section titled "Environment Variables". Below it, a note states: "The PostgreSQL image uses several environment variables which are easy to miss. While none of the variables are required, they may significantly aid you in using the image." A warning follows: "Warning: the Docker specific variables will only have an effect if you start the container with a data directory that is empty; any pre-existing database will be left untouched on container startup." There are three sections with bolded titles: "POSTGRES\_PASSWORD", "POSTGRES\_USER", and "POSTGRES\_DB".

## Environment Variables

The PostgreSQL image uses several environment variables which are easy to miss. While none of the variables are required, they may significantly aid you in using the image.

**Warning:** the Docker specific variables will only have an effect if you start the container with a data directory that is empty; any pre-existing database will be left untouched on container startup.

### POSTGRES\_PASSWORD

This environment variable is recommended for you to use the PostgreSQL image. This environment variable sets the superuser password for PostgreSQL. The default superuser is defined by the `POSTGRES_USER` environment variable.

Note 1: The PostgreSQL image sets up `trust` authentication locally so you may notice a password is not required when connecting from `localhost` (inside the same container). However, a password will be required if connecting from a different host/container.

Note 2: This variable defines the superuser password in the PostgreSQL instance, as set by the `initdb` script during initial container startup. It has no effect on the `PGPASSWORD` environment variable that may be used by the `psql` client at runtime, as described at <https://www.postgresql.org/docs/10/static/libpq-envvars.html>. `PGPASSWORD`, if used, will be specified as a separate environment variable.

### POSTGRES\_USER

This optional environment variable is used in conjunction with `POSTGRES_PASSWORD` to set a user and its password. This variable will create the specified user with superuser power and a database with the same name. If it is not specified, then the default user of `postgres` will be used.

### POSTGRES\_DB

This optional environment variable can be used to define a different name for the default database that is created when the image is first started. If it is not specified, then the value of `POSTGRES_USER` will be used.

The PostgreSQL image uses several environment variables which are easy to miss. While none of the variables are required, they may significantly aid you in using the image.

**Warning:** the Docker specific variables will only have an effect if you start the container with a data directory that is empty; any pre-existing database will be left untouched on container startup.

### POSTGRES\_PASSWORD

This environment variable is recommended for you to use the PostgreSQL image. This environment variable sets the superuser password for PostgreSQL. The default superuser is defined by the `POSTGRES_USER` environment variable.

Note 1: The PostgreSQL image sets up `trust` authentication locally so you may notice a password is not required when connecting from `localhost` (inside the same container). However, a password will be required if connecting from a different host/container.

Note 2: This variable defines the superuser password in the PostgreSQL instance, as set by the `initdb` script during initial container startup. It has no effect on the `PGPASSWORD` environment variable that may be used by the `psql` client at runtime, as described at <https://www.postgresql.org/docs/10/static/libpq-envvars.html>. `PGPASSWORD`, if used, will be specified as a separate environment variable.

### POSTGRES\_USER

This optional environment variable is used in conjunction with `POSTGRES_PASSWORD` to set a user and its password. This variable will create the specified user with superuser power and a database with the same name. If it is not specified, then the default user of `postgres` will be used.

### POSTGRES\_DB

This optional environment variable can be used to define a different name for the default database that is created when the image is first started. If it is not specified, then the value of `POSTGRES_USER` will be used.

```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
    - name: db
      image: postgres:12.0-alpine
      env:
        - name: POSTGRES_DB
          value: my-test-db
  volumeMounts:
    - name: my-data
      mountPath: /var/lib/postgresql/data
      subPath: postgresql-folder
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```



```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
    - name: db
      image: postgres:12.0-alpine
      env:
        - name: POSTGRES_DB
          value: my-test-db
  volumeMounts:
    - name: my-data
      mountPath: /var/lib/postgresql/data
      subPath: postgresql-folder
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```



```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
    - name: db
      image: postgres:12.0-alpine
      env:
        - name: POSTGRES_DB
          value: my-test-db
  volumeMounts:
    - name: my-data
      mountPath: /var/lib/postgresql/data
      subPath: postgresql-folder
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```

```
* kubectl exec my-advanced-pod -it --container api -- bash  
  
createuser eugene \  
--host localhost \  
--port 5432 \  
--username postgres  
  
createdb \  
--host hello-world \  
--port 5432 \  
--username postgres my-test-db  
  
* wget ...shakespeare.sql  
  
psql my-test-db --username eugene < shakespeare.sql my-test-db  
  
* kubectl run -i --tty debug --image=ubuntu --restart=Never -- bash
```

<https://raw.githubusercontent.com/catherinedevlin/opensourceshakespeare/master/shakespeare.sql>

```
kubectl run -i --tty --rm debug --image=ubuntu --restart=Never -- bash
```

```
GET /hello
```

```
GET /hello?name=Eugene
```

```
GET /env
```

```
GET /ip
```

```
GET /paragraphs
```



```
curl 10.0.23.17/hello?name=Elon
```

**Demo / Практика**

**Под с двумя контейнерами**



# **Pod**

## **nodeSelectors**

**Зачем существуют  
nodeSelectors?**

**Worker node**

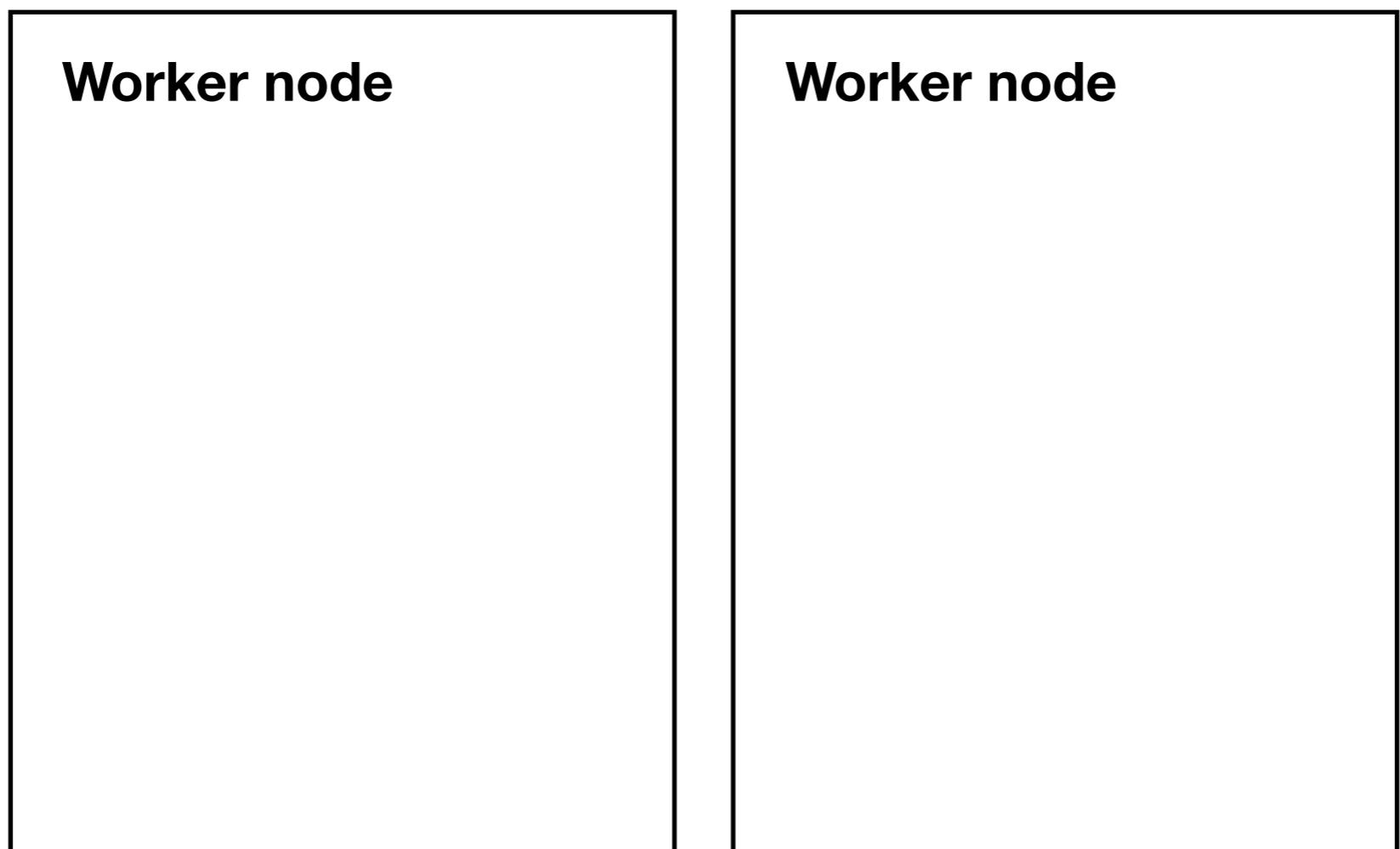
**Worker node**

**Worker node**

**Worker node**



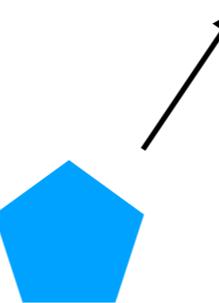
my-advanced-pod



my-advanced-pod

**Worker node**

**Worker node**



my-advanced-pod

**Worker node**

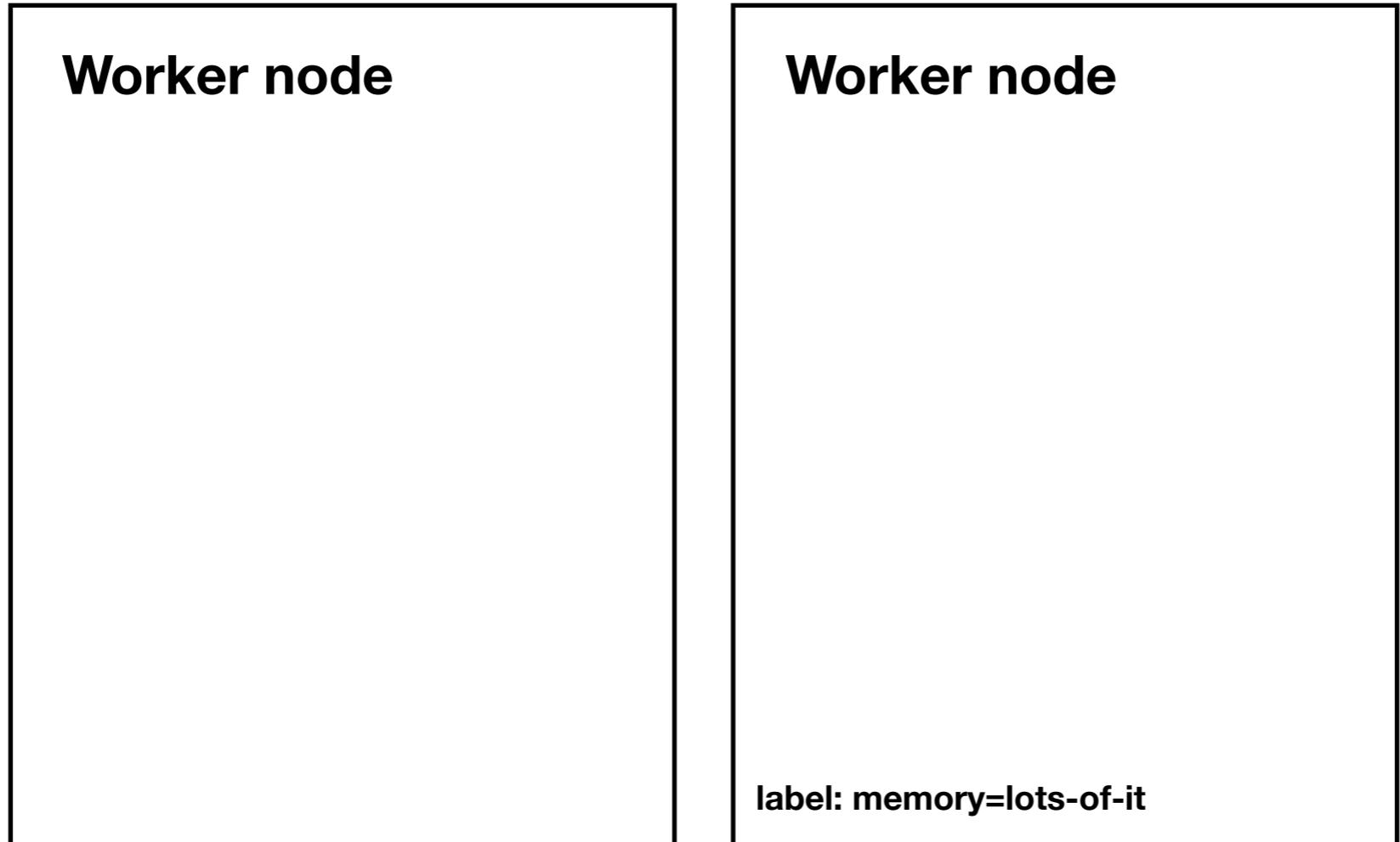
**Worker node**

**label: memory=lots-of-it**

**selector: memory=lots-of-it**



**my-advanced-pod**



my-advanced-pod

selector: **memory=lots-of-it**

Worker node

Worker node

label: **memory=lots-of-it**

Совершенно  
произвольные строки!

**Worker node**

**Worker node**

**label: memory=lots-of-it**  
**label: name=...**  
**label: os=...**  
**label: arch=...**  
**label: region=...**

**selector: memory=lots-of-it**



**my-advanced-pod**

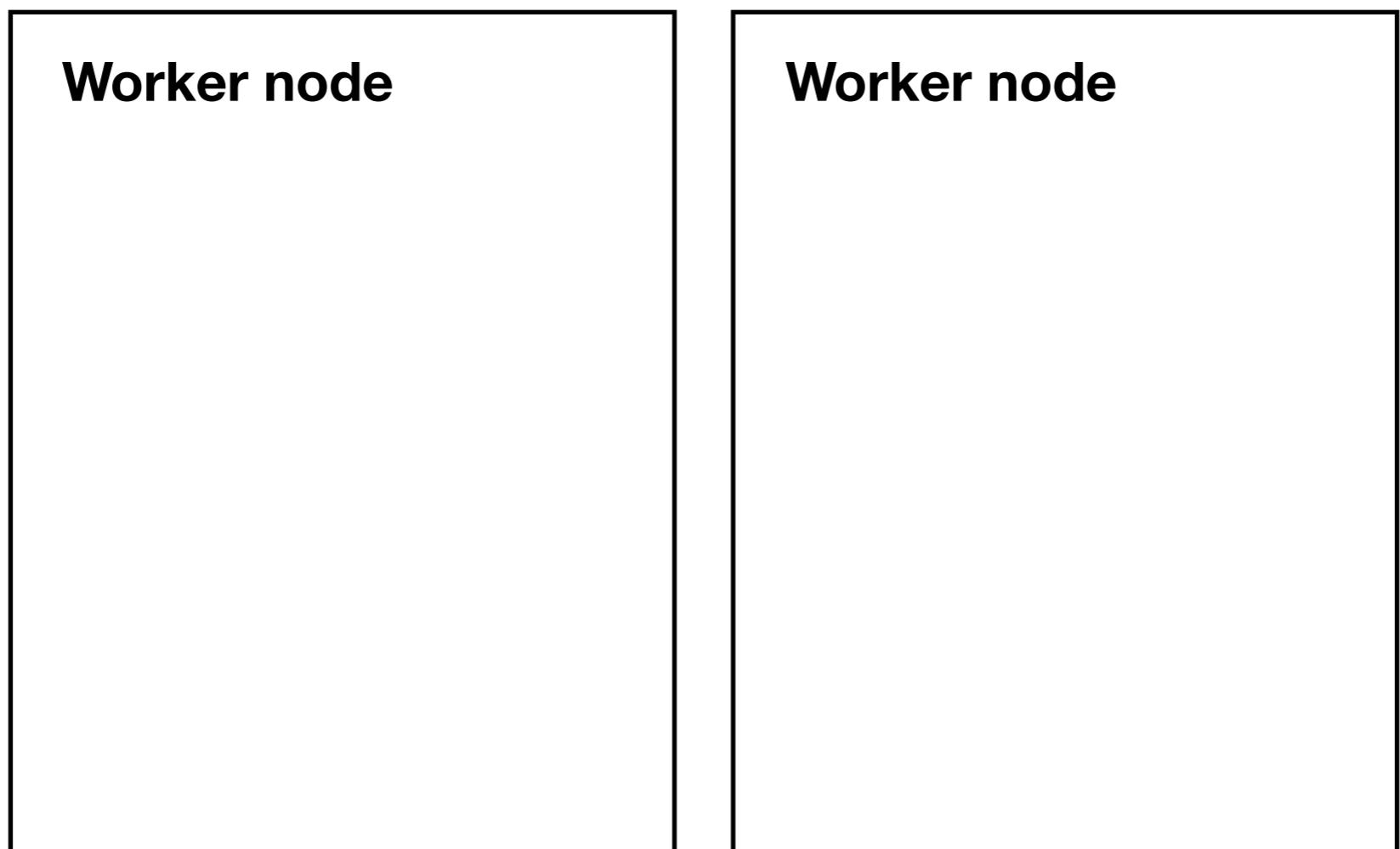
# Demo / Практика

## nodeSelector



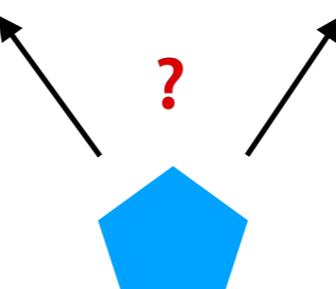
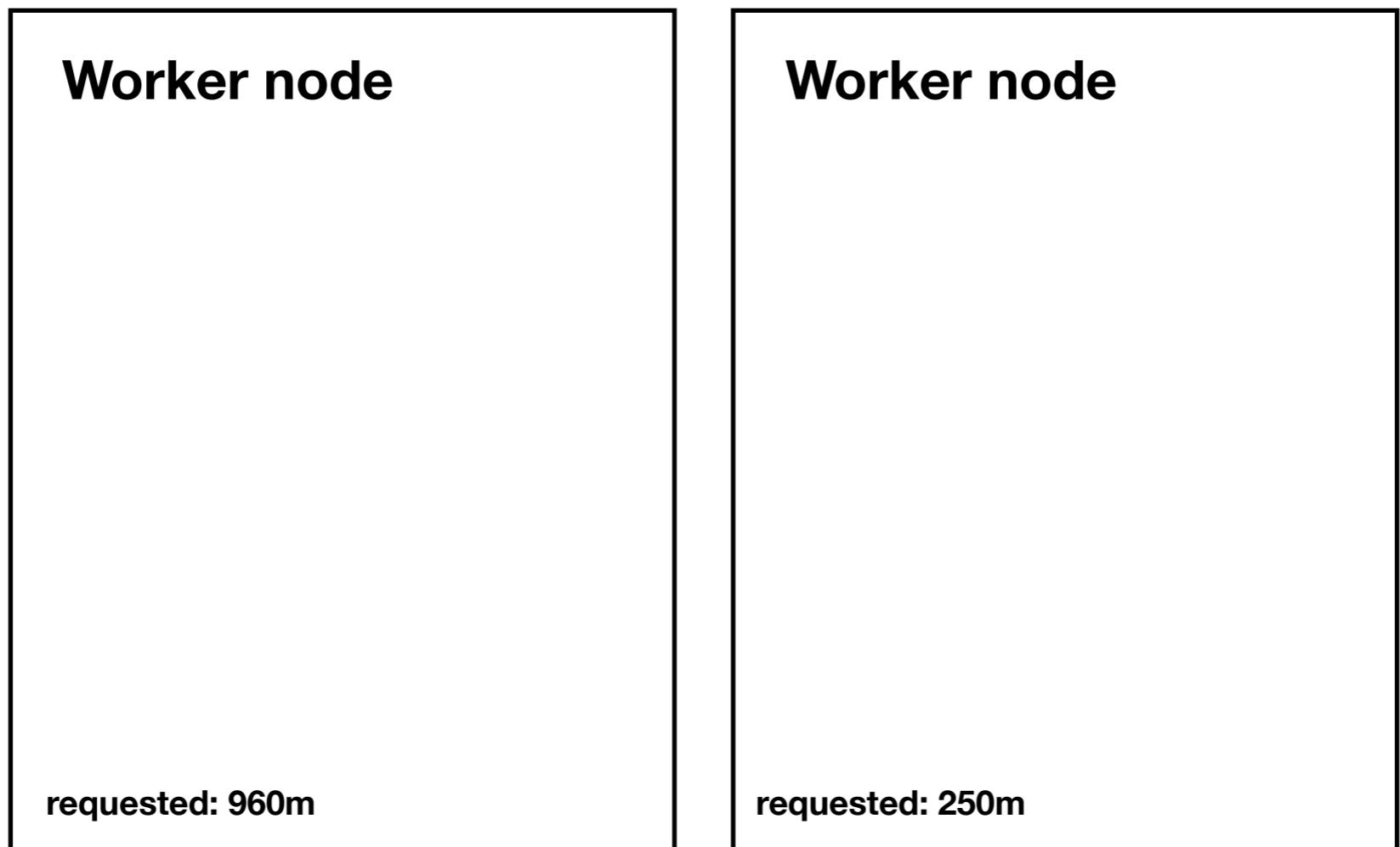
# **Pod**

## **requests / limits**

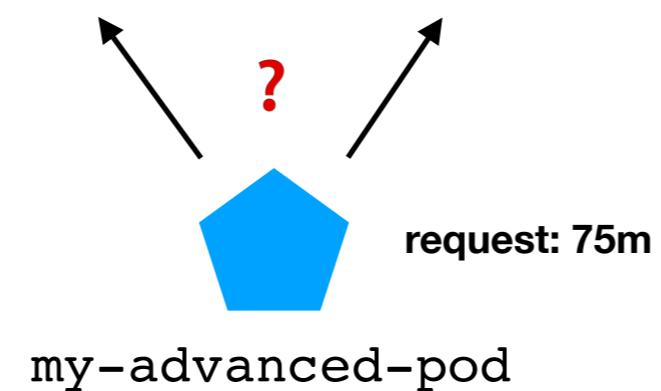
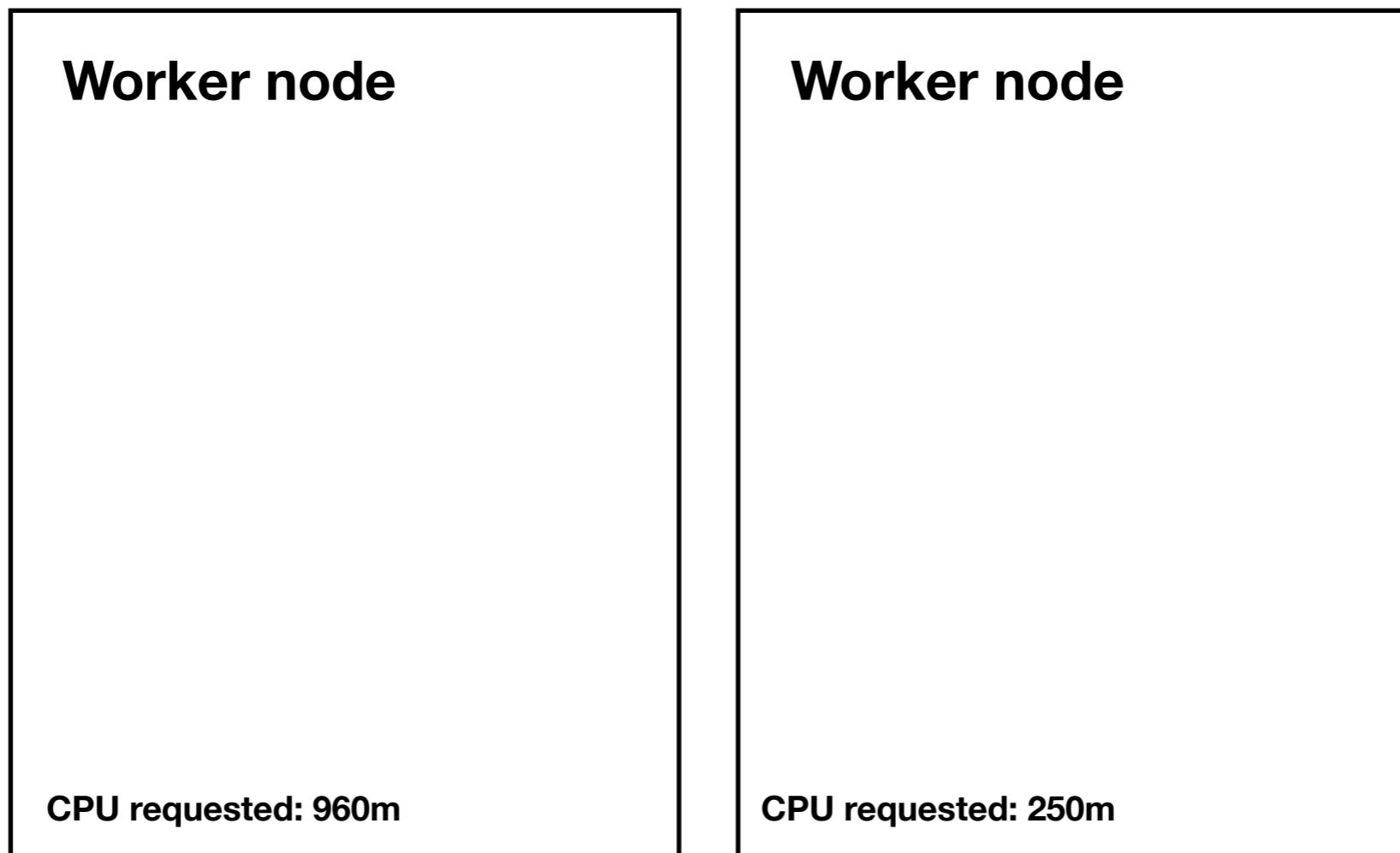


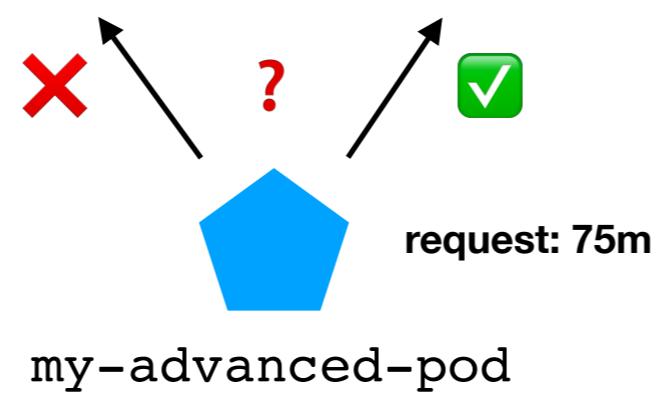
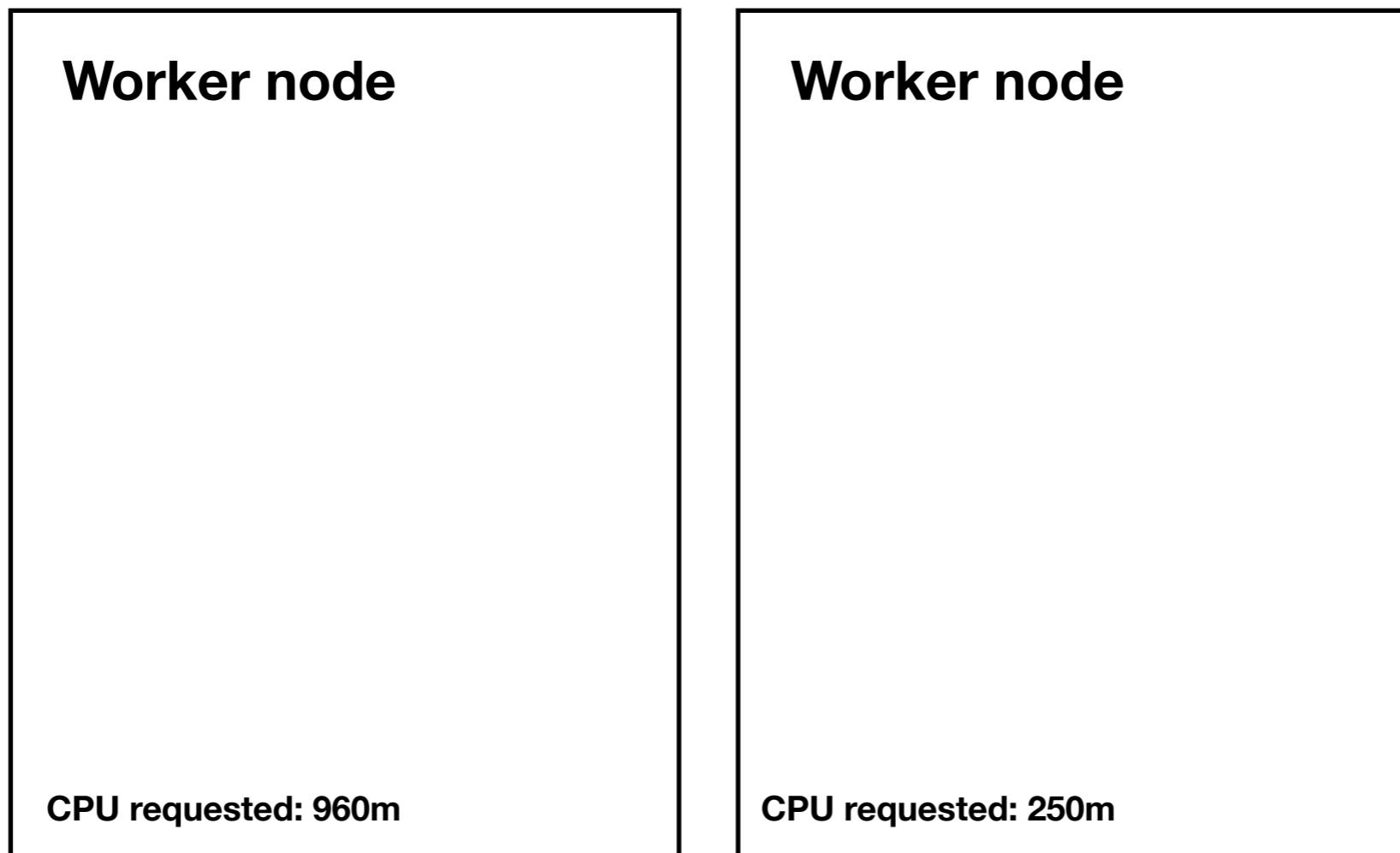
?

my-advanced-pod



my-advanced-pod





## **Worker node**

**CPU requested: 960m**

## **Worker node**



**my-advanced-pod**

**CPU requested: 325m**

## Worker node

CPU requested: 960m  
Memory requested: ...

## Worker node



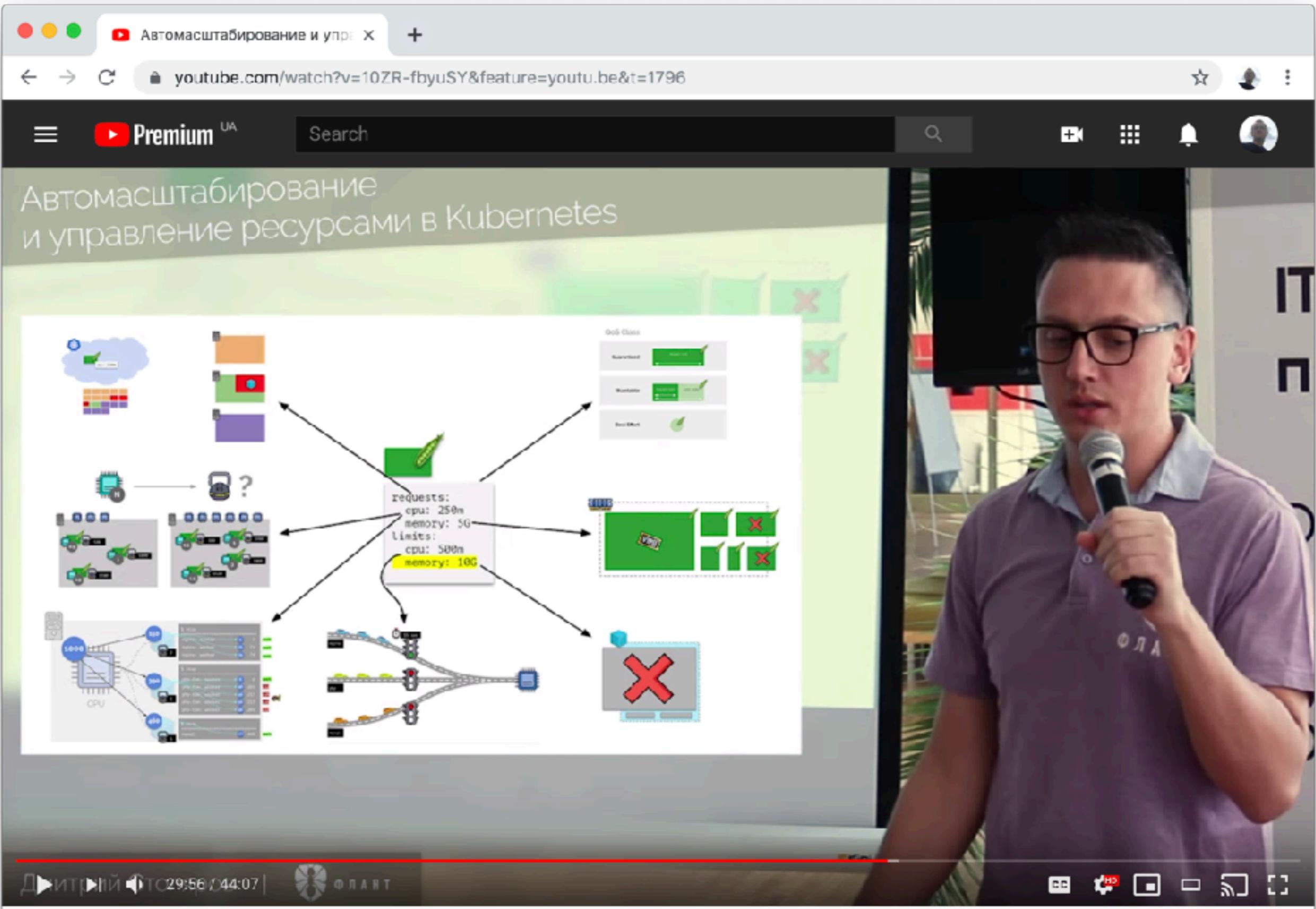
my-advanced-pod

CPU requested: 325m  
Memory requested: ...

**Demo / Практика**

**requests / limits**

- \* add CPU requests my-advanced-pod-2.yaml
- \* kubectl delete / apply -f my-advanced-pod-2.yaml



Автомасштабирование и управление ресурсами в Kubernetes (Дмитрий Столяров, Флант)

3,063 views • Jul 16, 2019

222

2

SHARE

SAVE

Up next



AUTOPLAY

Мониторинг и Kubernetes  
(Дмитрий Столяров,...  
Флант



**Скейлимся!**

**Демо / Практика**

**копируем поду**

Multi-Attach error for volume  
"pv-for-our-tests" Volume is already  
used by pod(s) my-advanced-pod-2

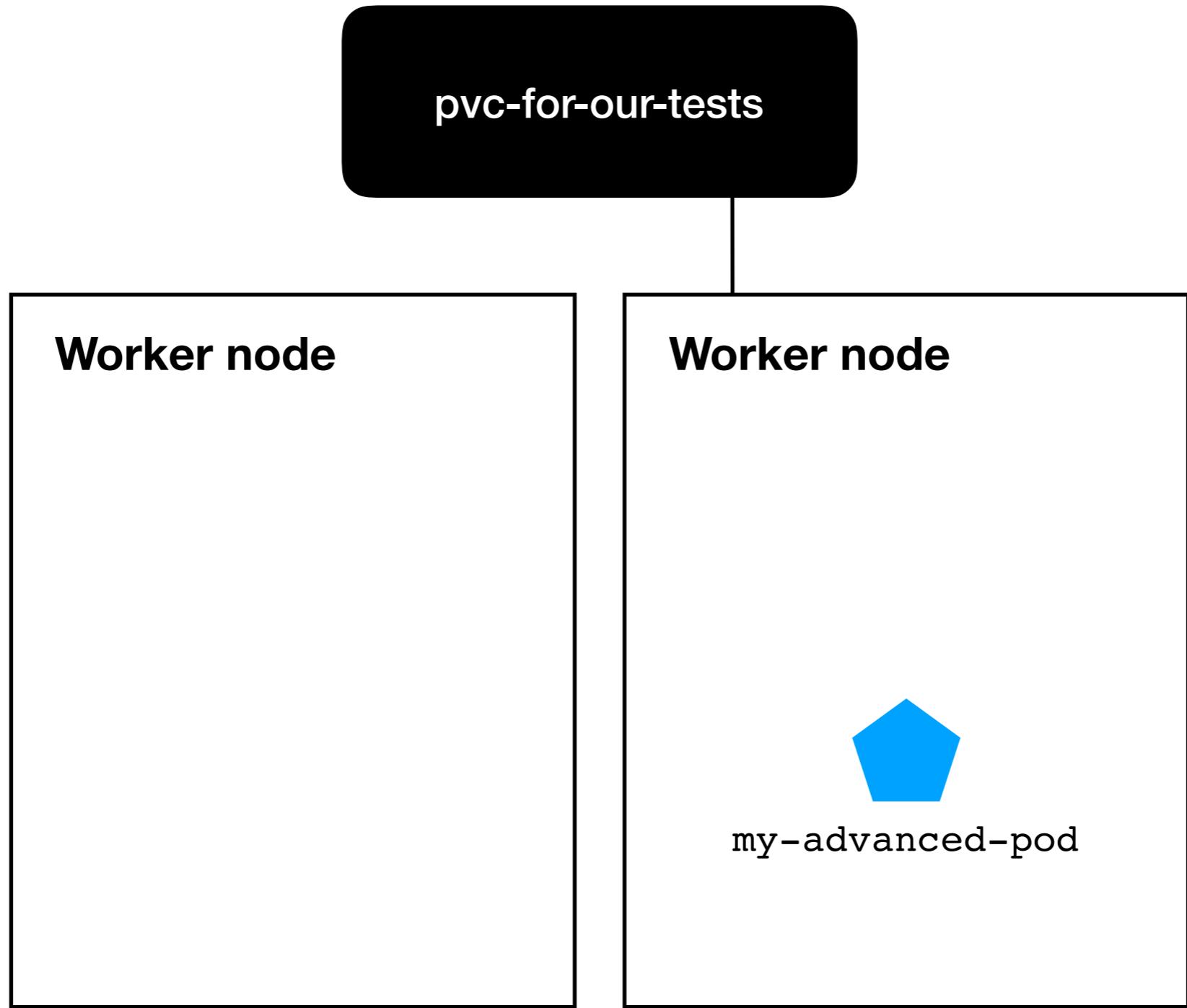
pvc-for-our-tests

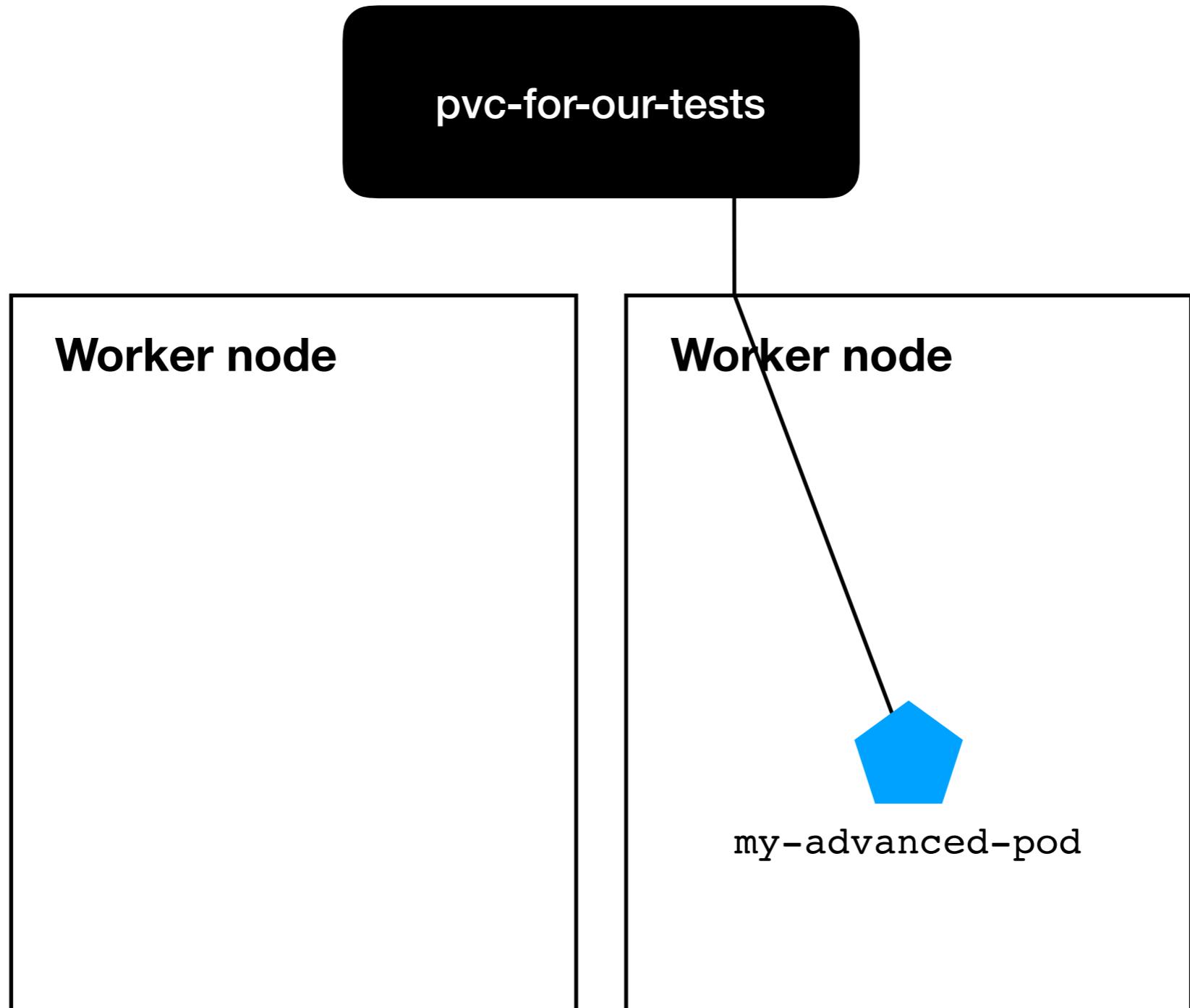
**Worker node**

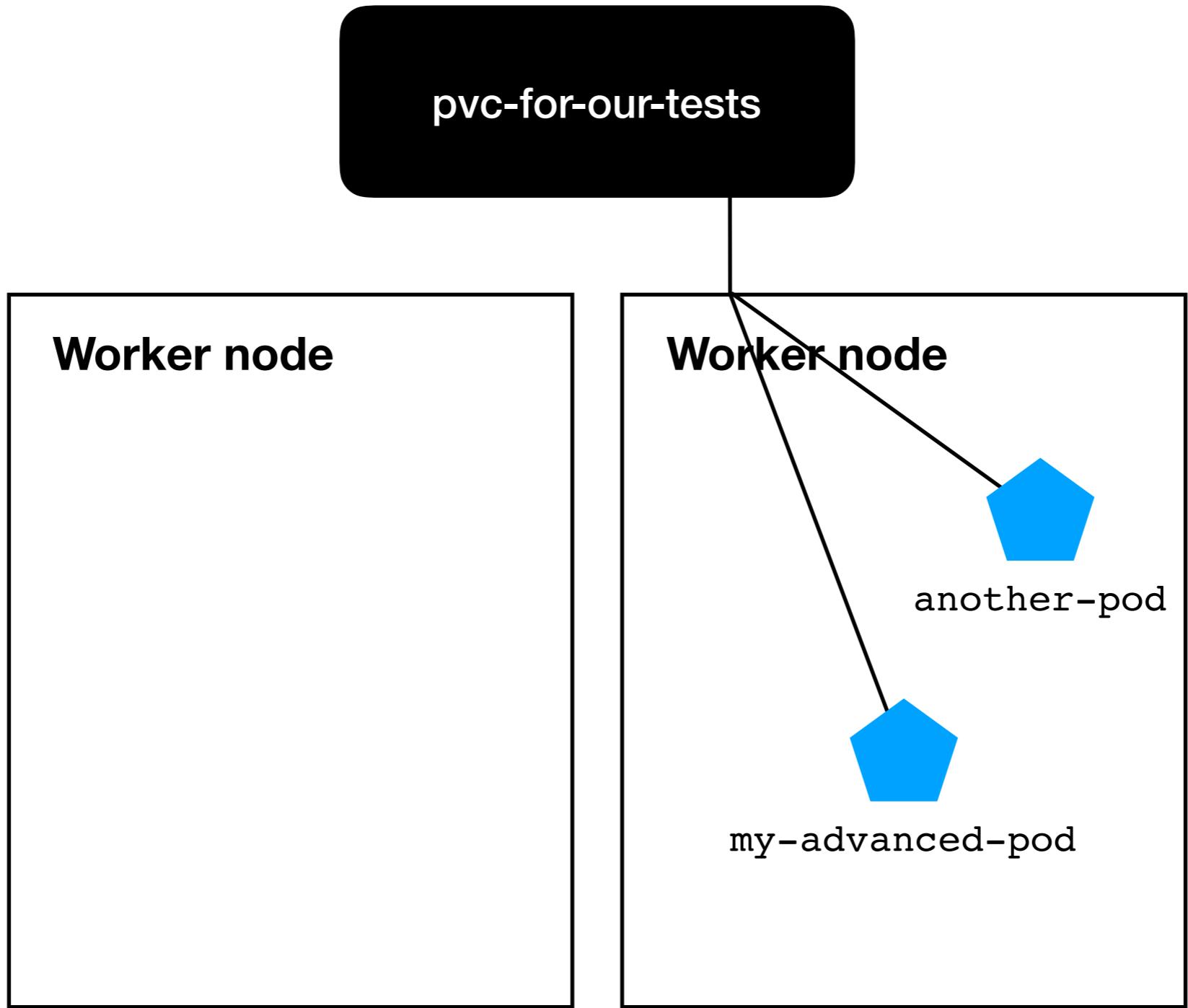
**Worker node**

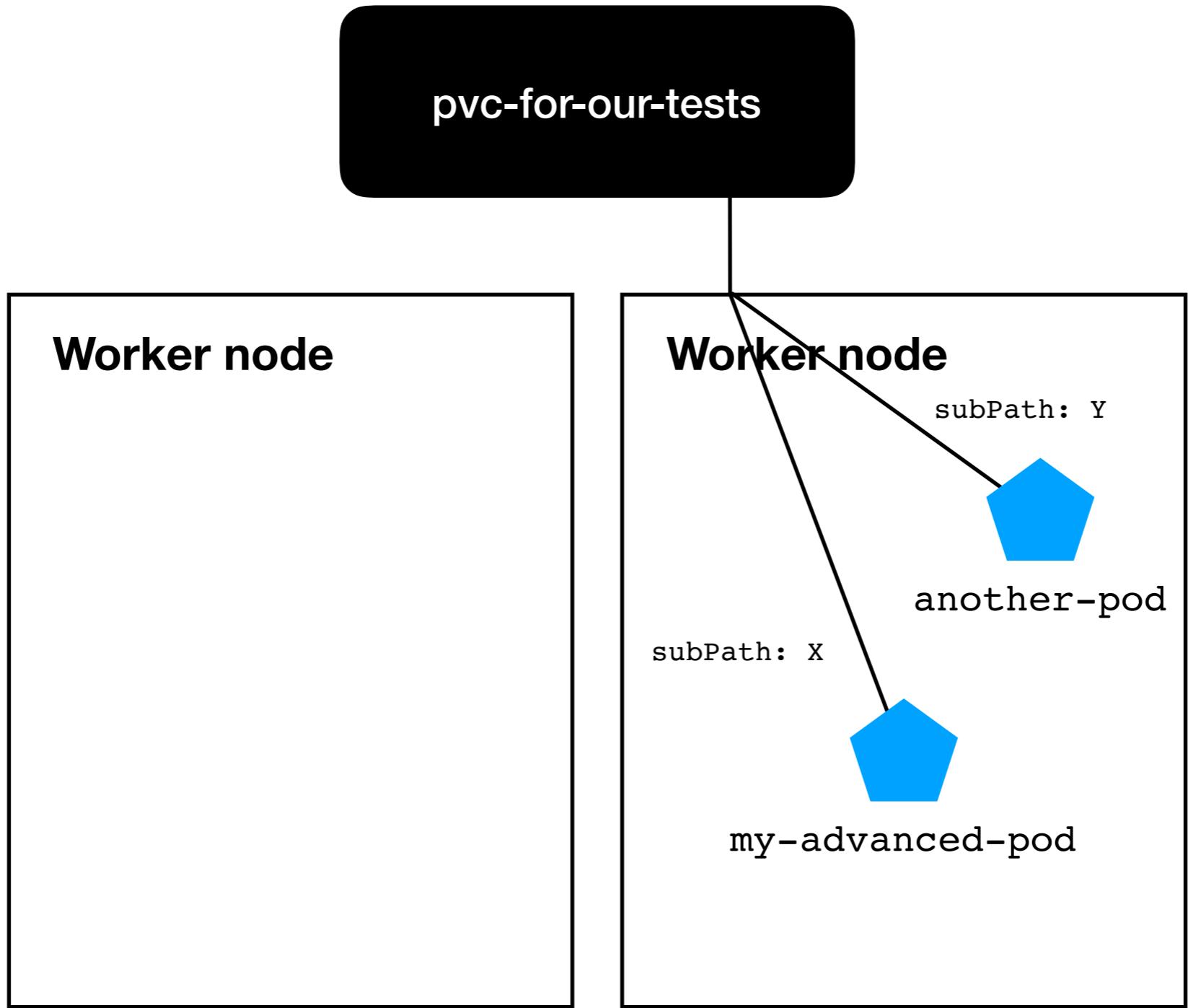


my-advanced-pod









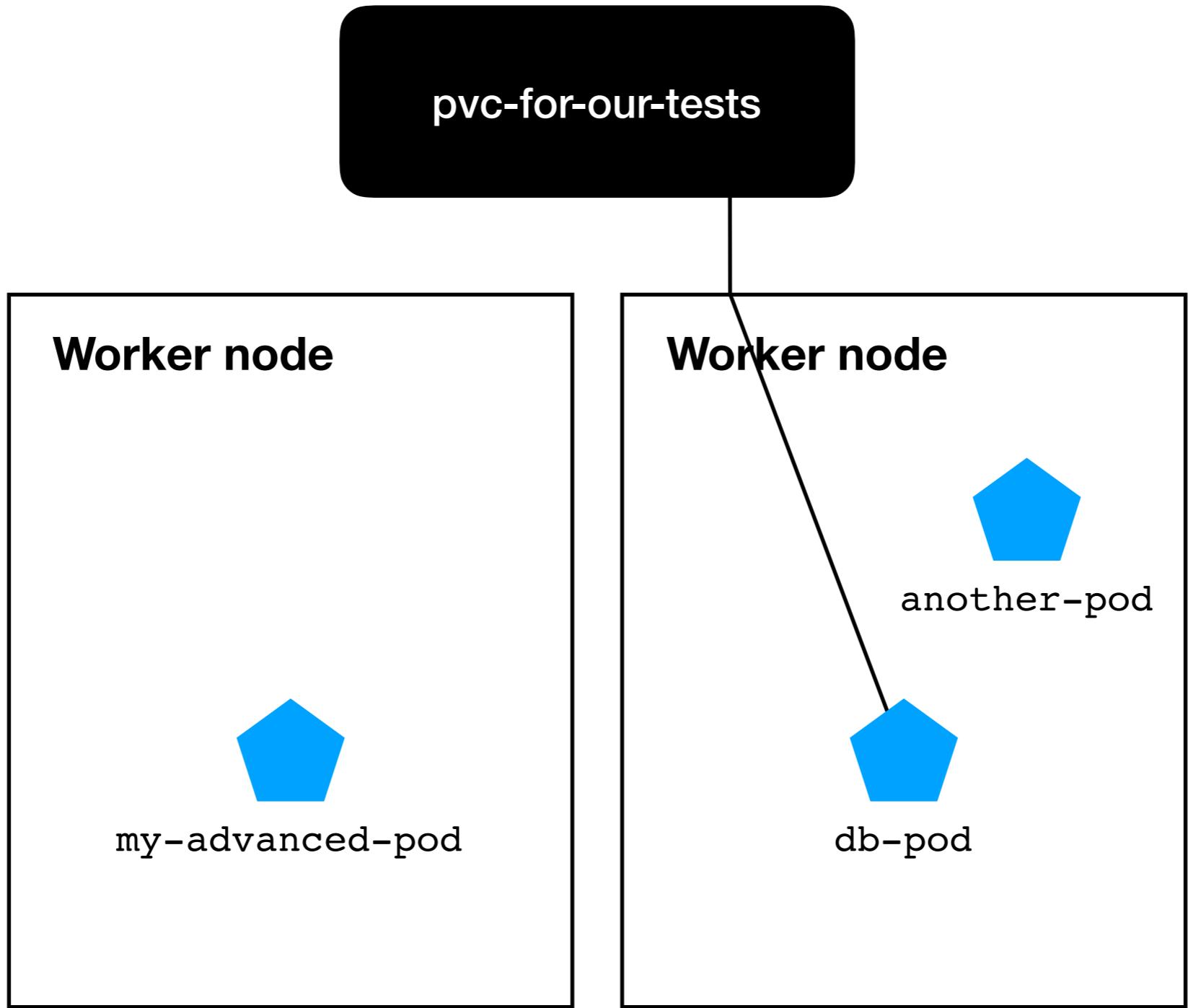
```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
    - name: db
      image: postgres:12.0-alpine
      env:
        - name: POSTGRES_DB
          value: my-test-db
  volumeMounts:
    - name: my-data
      mountPath: /var/lib/postgresql/data
      subPath: postgresql-folder
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```

```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
    - name: db
      image: postgres:12.0-alpine
      env:
        - name: POSTGRES_DB
          value: my-test-db
  volumeMounts:
    - name: my-data
      mountPath: /var/lib/postgresql/data
      subPath: postgresql-folder
  volumes:
    - name: my-data
      persistentVolumeClaim:
        claimName: pvc-for-our-tests
```

**Вывод:**  
**мы не правильно**  
**спроектировали поду**

**Демо / Практика**

**разбиваем поду на 2**



**Worker node**



my-advanced-pod

**Worker node**



another-pod

## **Worker node**



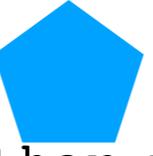
my-advanced-pod  
10.0.27.11

## **Worker node**

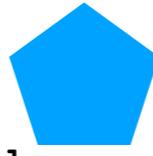


another-pod  
10.0.27.12

## **Worker node**

another-pod  
10.0.27.14

## **Worker node**

my-advanced-pod  
10.0.27.13

**При пересоздании поды  
меняется IP адрес**

**При пересоздании поды  
меняется IP адрес**

**Когда однотипных под много,  
нет единой точки входа**



**Service**

```
apiVersion: v1
kind: Service
metadata:
  name: my-best-service
spec:
  type: ClusterIP
  ports:
    - port: 80
      targetPort: 4000
  selector:
    my_app: hello-world
```

**Demo / Практика**

**Moving to service**

- \* `kubectl run debug \-it \--rm \--image=ubuntu \--restart=Never -- bash`
- \* `curl my-best-service/hello`  
`curl my-best-service/ip (a few times)`
- \* re-create a pod  
`curl my-best-service/ip (a few times)`

```
watch kubectl get pod,pv,pvc,svc -o wide
```

Service - Kubernetes x +

kubernetes.io/docs/concepts/services-networking/service/#protocol-support

 **kubernetes** Documentation Blog Partners Community Case Studies English v1.16

## Publishing Services (ServiceTypes)

For some parts of your application (for example, frontends) you may want to expose a Service onto an external IP address, that's outside of your cluster.

Kubernetes `ServiceTypes` allow you to specify what kind of Service you want. The default is `ClusterIP`.

Type values and their behaviors are:

- `ClusterIP`: Exposes the Service on a cluster-internal IP. Choosing this value makes the Service only reachable from within the cluster. This is the default `ServiceType`.
- [`NodePort`](#): Exposes the Service on each Node's IP at a static port (the `NodePort`). A `ClusterIP` Service, to which the `NodePort` Service routes, is automatically created. You'll be able to contact the `NodePort` Service, from outside the cluster, by requesting `<NodeIP>:<NodePort>`.
- [`LoadBalancer`](#): Exposes the Service externally using a cloud provider's load balancer. `NodePort` and `ClusterIP` Services, to which the external load balancer routes, are automatically

Service - Kubernetes

kubernetes.io/docs/concepts/services-networking/service/#protocol-support

**kubernetes**

Documentation Blog Partners Community Case Studies English v1.16

# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE Search

## Concepts

- ▶ Overview
- ▶ Cluster Architecture
- ▶ Containers
- ▶ Workloads
- ▼ Services, Load Balancing, and Networking
  - Endpoint Slices
  - Service**

DNS for Services and Pods

Connecting Applications with Services

Ingress

Ingress Controllers

Network Policies

Adding entries to Pod /etc/hosts with HostAliases

IPv4/IPv6 dual-stack

- ▶ Storage

- ▶ Configuration

## Service

An abstract way to expose an application running on a set of Pods as a network service.

With Kubernetes you don't need to modify your application to use an unfamiliar service discovery mechanism. Kubernetes gives Pods their own IP addresses and a single DNS name for a set of Pods, and can load-balance across them.

- Motivation
- Service resources
- Defining a Service
- Virtual IPs and service proxies
- Multi-Port Services
- Choosing your own IP address
- Discovering services
- Headless Services
- Publishing Services (ServiceTypes)
- Shortcomings
- Virtual IP implementation

Service - Kubernetes x +

kubernetes.io/docs/concepts/services-networking/service/#protocol-support

 **kubernetes** Documentation Blog Partners Community Case Studies English v1.16

This means that Service owners can choose any port they want without risk of collision. Clients can simply connect to an IP and port, without being aware of which Pods they are actually accessing.

## **iptables**

Again, consider the image processing application described above. When the backend Service is created, the Kubernetes control plane assigns a virtual IP address, for example 10.0.0.1. Assuming the Service port is 1234, the Service is observed by all of the kube-proxy instances in the cluster. When a proxy sees a new Service, it installs a series of iptables rules which redirect from the virtual IP address to per-Service rules. The per-Service rules link to per-Endpoint rules which redirect traffic (using destination NAT) to the backends.

When a client connects to the Service's virtual IP address the iptables rule kicks in. A backend is chosen (either based on session affinity or randomly) and packets are redirected to the backend. Unlike the userspace proxy, packets are never copied to userspace, the kube-proxy does not have to be running for the virtual IP address to work, and Nodes see traffic arriving from the unaltered client IP address.

This same basic flow executes when traffic comes in through a node-port or through a load-balancer, though in those cases the destination IP does not change.

W iptables - Wikipedia

en.wikipedia.org/wiki/Iptables

Not logged in Talk Contributions Create account Log in

Article Talk Read Edit View history Search Wikipedia

# iptables

From Wikipedia, the free encyclopedia

This article includes a [list of references](#), but its sources remain unclear because it has insufficient [inline citations](#). Please help to [improve](#) this article by [introducing](#) more precise citations. (April 2015) ([Learn how and when to remove this template message](#))

**iptables** is a user-space utility program that allows a system administrator to configure the tables<sup>[2]</sup> provided by the Linux kernel firewall (implemented as different Netfilter modules) and the chains and rules it stores. Different kernel modules and programs are currently used for different protocols; *iptables* applies to IPv4, *ip6tables* to IPv6, *arptables* to ARP, and *ebtables* to Ethernet frames.

*iptables* requires elevated privileges to operate and must be executed by user *root*, otherwise it fails to function. On most Linux systems, *iptables* is installed as */usr/sbin/iptables* and documented in its [man pages](#), which can be opened using `man iptables` when installed. It may also be found in */sbin/iptables*, but since *iptables* is more like a service rather than an "essential binary", the preferred location remains */usr/sbin*.

The term *iptables* is also commonly used to inclusively refer to the kernel-level components. *x\_tables* is the name of the kernel module carrying the shared code portion used by all four modules that also provides the API used for extensions; subsequently, *Xtables* is more or less used to refer to the entire firewall (v4, v6, arp, and eb) architecture.

*iptables* superseded *ipchains*; and the successor of *iptables* is *nftables*, which was released on 19 January 2014<sup>[3]</sup> and was merged into the Linux kernel mainline in kernel version 3.13.

**Iptables**

Original author(s)	Rusty Russell
Developer(s)	Netfilter Core Team
Initial release	1998
Stable release	1.8.3 / May 27, 2019; 4 months ago <sup>[1]</sup>
Repository	<a href="https://git.netfilter.org/iptables">git.netfilter.org/iptables</a>
Written in	C
Operating system	Linux
Platform	Netfilter
Type	Packet filtering
License	GPL
Website	<a href="http://www.netfilter.org">www.netfilter.org</a>

Contents [hide]

- 1 Overview
- 2 Userspace utilities
  - 2.1 Front-ends
  - 2.2 Other notable tools

## Worker node



debug pod  
with ubuntu

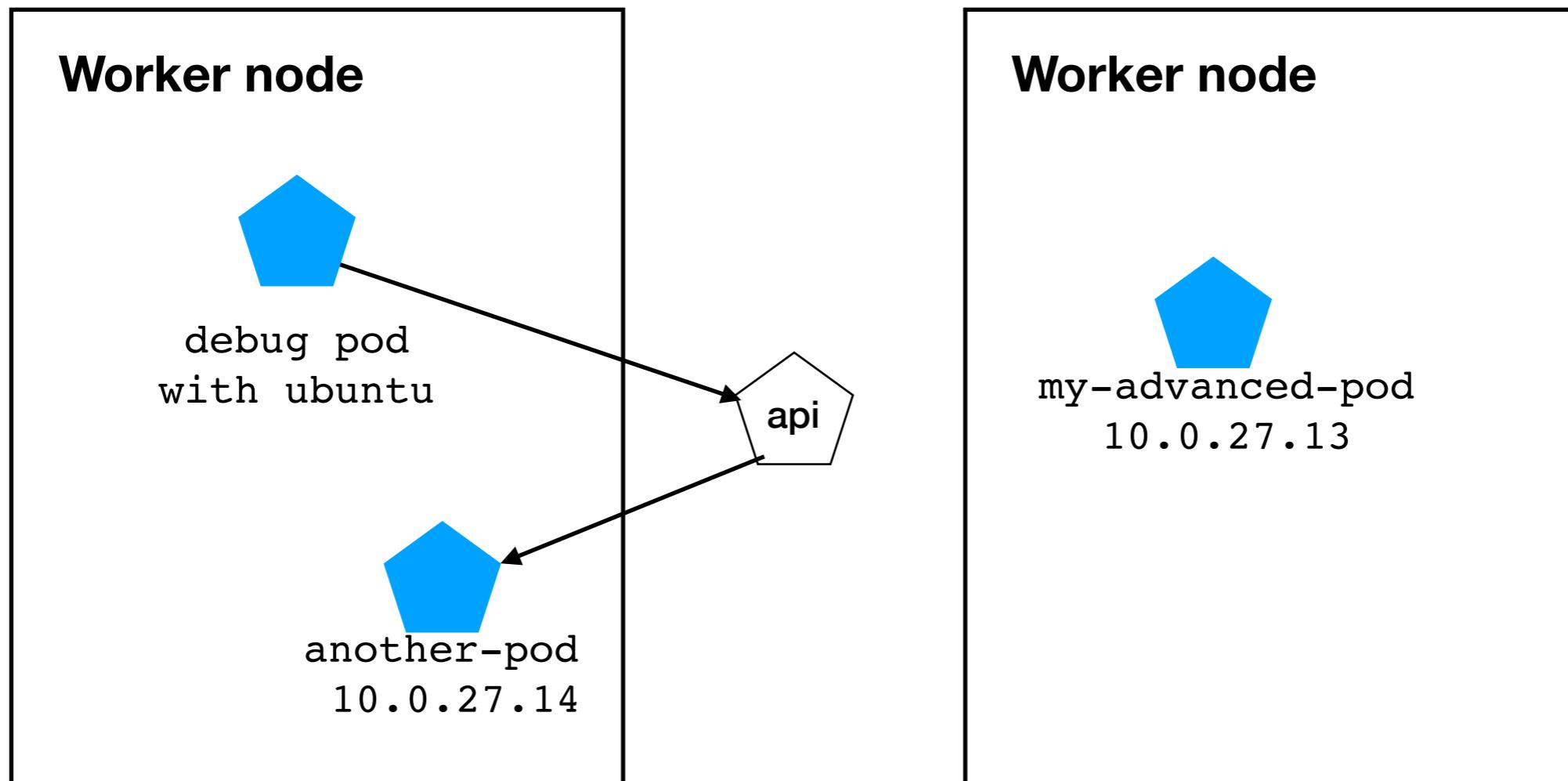
another-pod  
10.0.27.14

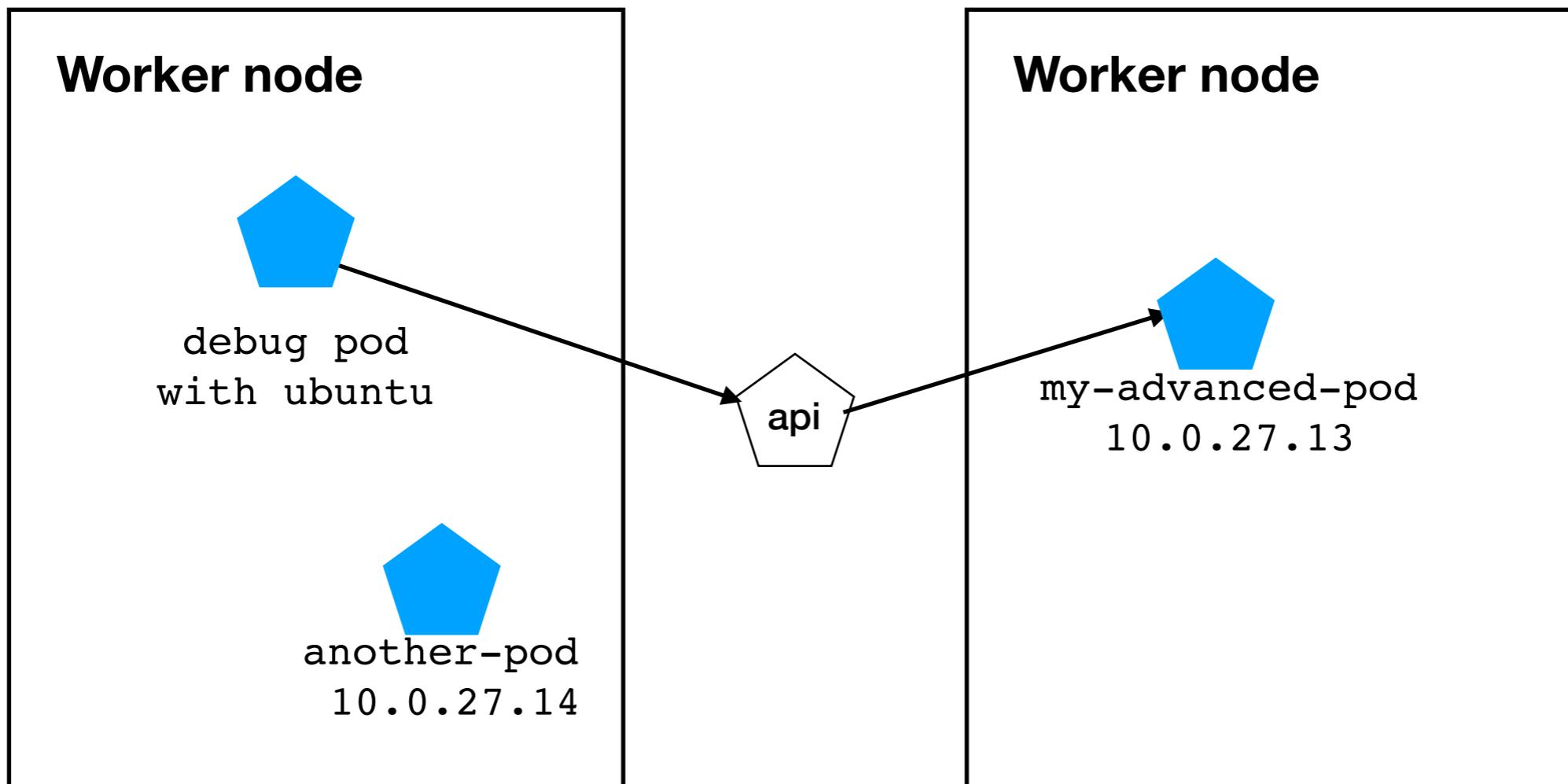


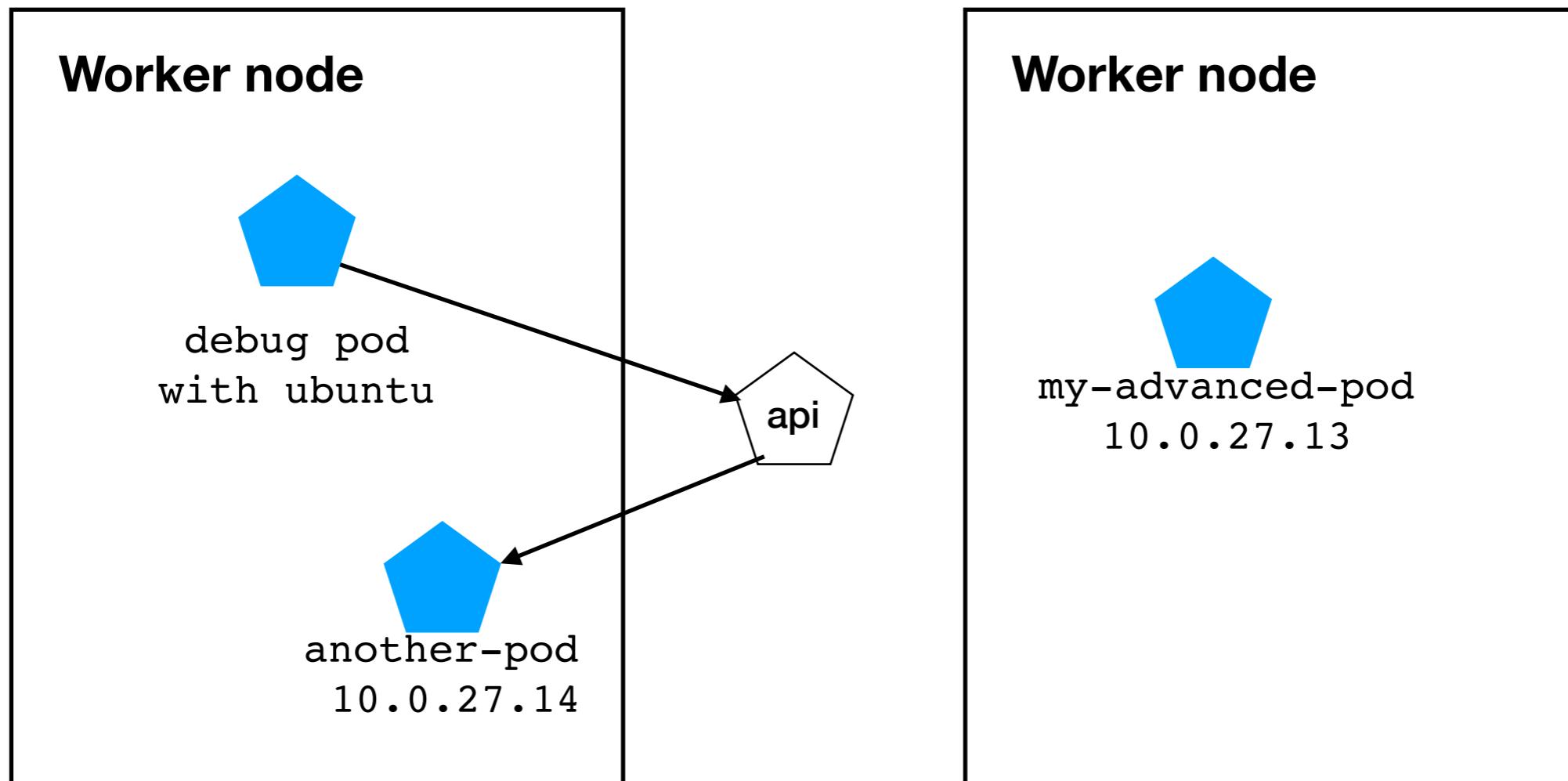
## Worker node

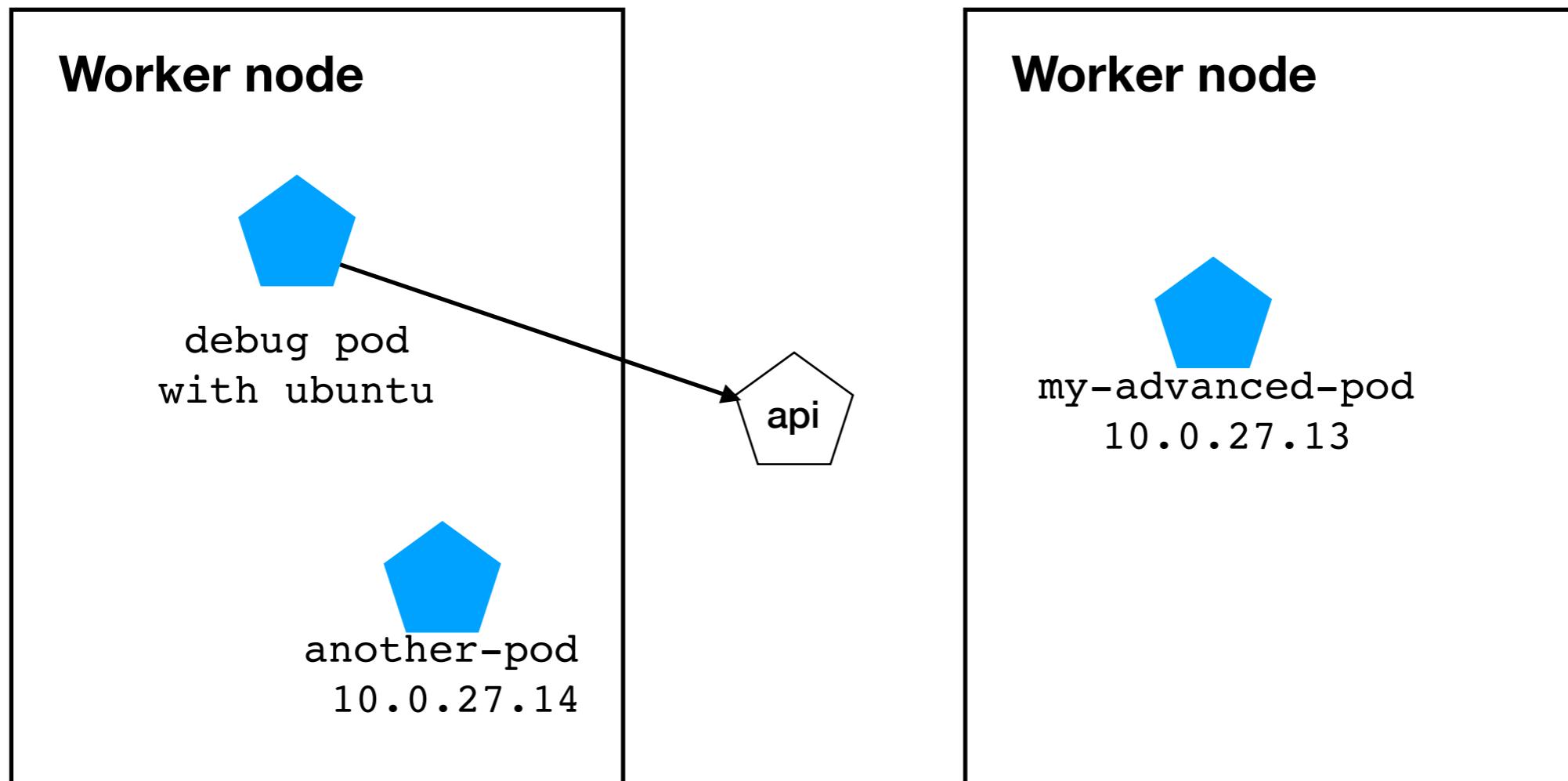


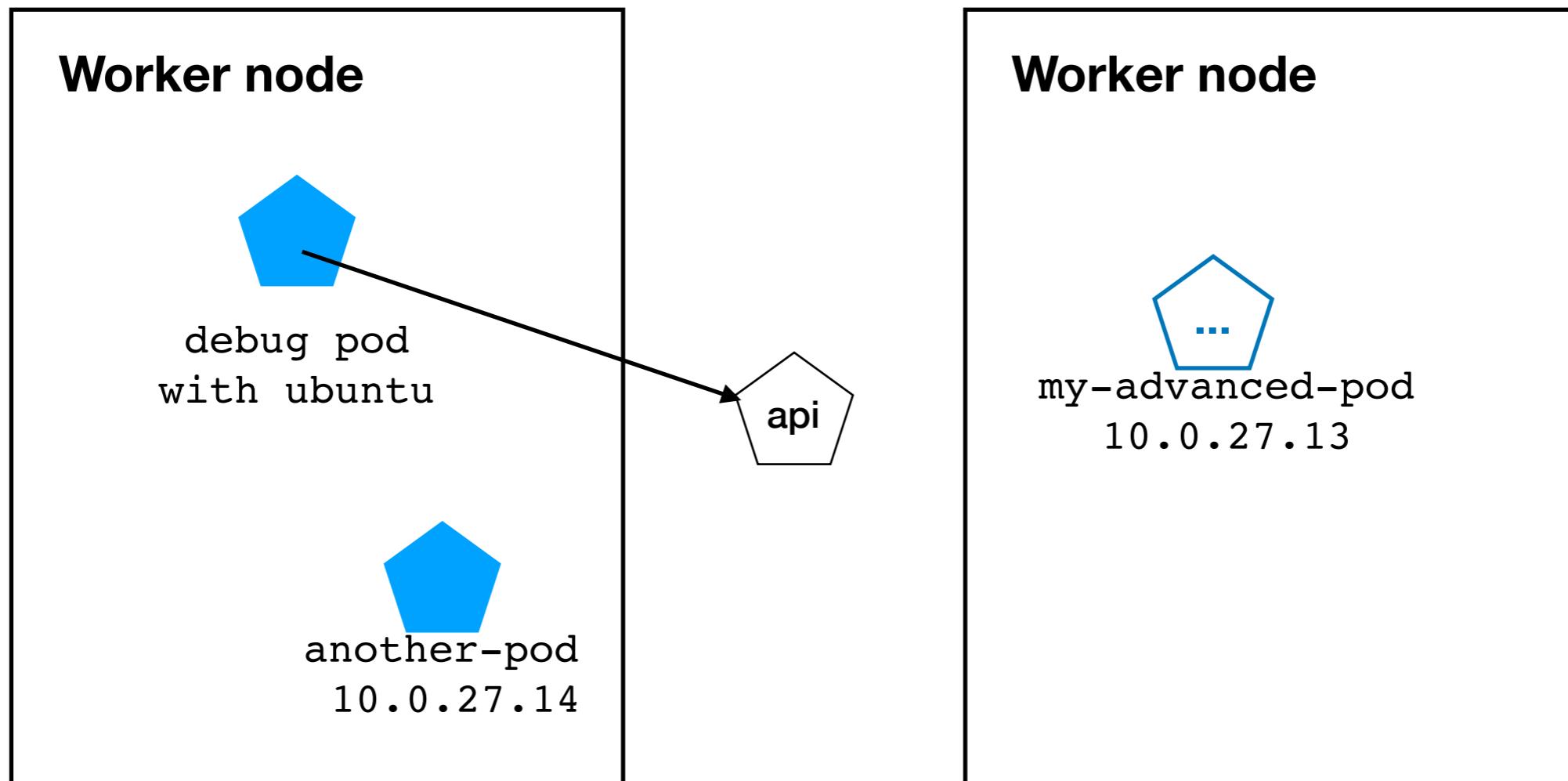
my-advanced-pod  
10.0.27.13

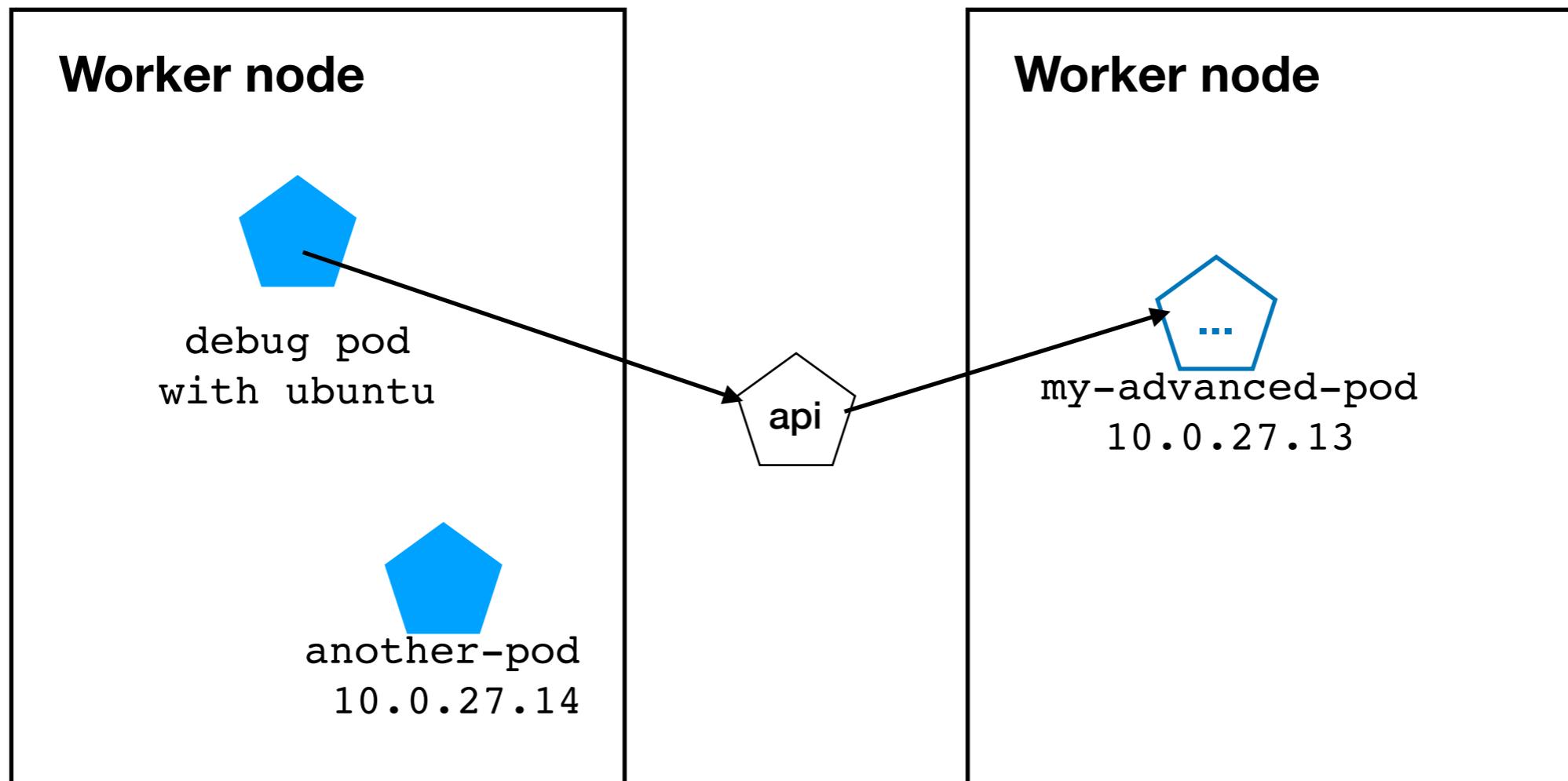












**Demo / Практика**

**POD readiness**

**Копировать поды  
вручную не удобно**

**Копировать поды  
вручную не удобно  
и не серьезно**

```
apiVersion: v1
kind: Pod
metadata:
  name: my-advanced-pod
  labels:
    my_app: elixir
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
  resources:
    requests:
      cpu: 1m
```

```
metadata:
  name: my-advanced-pod
  labels:
    my_app: elixir
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@localhost:5432/my-test-db
  resources:
    requests:
      cpu: 1m
```

```
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: my-first-rs
spec:
  replicas: 2
  selector:
    matchLabels:
      my_app: elixir
  template:
    metadata:
      name: my-advanced-pod
      labels:
        my_app: elixir
    spec:
      containers:
        - name: api
          image: gmile/workshop-app:v14
          env:
            - name: DATABASE_URL
              value: postgres://postgres@localhost:5432/my-test-db
      resources:
        requests:
          cpu: 1m
```



# ReplicaSet



ReplicaSet

**Worker node**



**Worker node**



ReplicaSet

**Worker node**

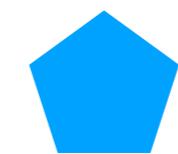


my\_app: php

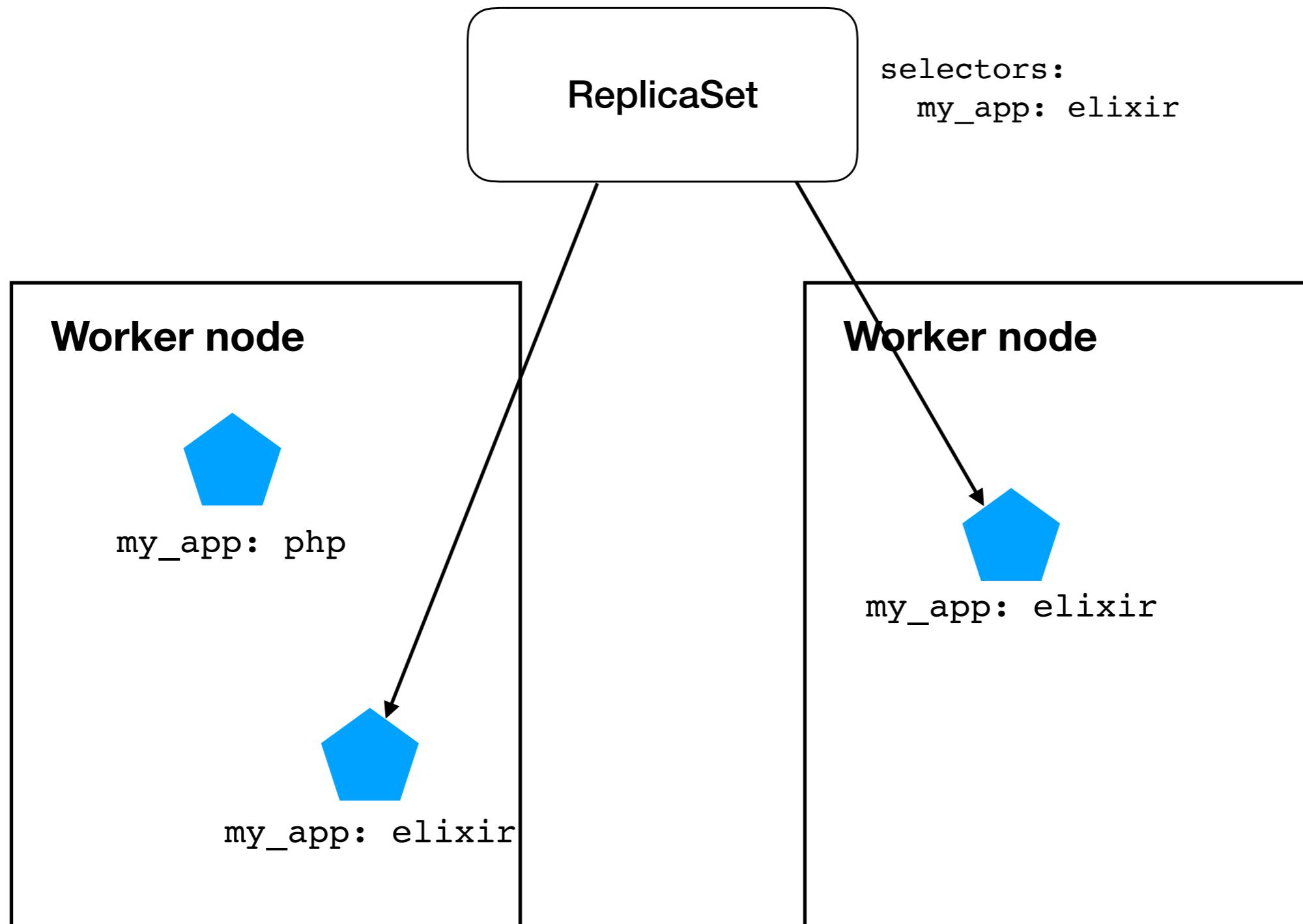


my\_app: elixir

**Worker node**



my\_app: elixir



# Demo

## Replica Set

# Практика

## Replica Set

- \* add pod with same label
- \* remove pod with same label
- \* remove label from pod
- \* kubectl scale
- \* change pod template

```
watch kubectl get pod,pv,pvc,svc,rs -o wide
```

**kubectl delete -f ... /  
kubectl apply -f ...  
надоело**

**Как выкатить новую  
версию поды?**

ReplicaSet - Kubernetes   X   +

kubernetes.io/docs/concepts/workloads/controllers/replicaset/

 **kubernetes**

Documentation Blog Partners Community Case Studies English v1.16

# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE Search



## Concepts

- ▶ Overview
- ▶ Cluster Architecture
- ▶ Containers
- ▼ Workloads
  - ▶ Pods
  - ▼ Controllers
    - ReplicaSet
    - ReplicationController
    - Deployments
    - StatefulSets
    - DaemonSet
    - Garbage Collection
  - TTL Controller for Finished Resources
  - Jobs - Run to Completion
  - CronJob

- ▶ Services, Load Balancing, and Networking

## ReplicaSet



A ReplicaSet's purpose is to maintain a stable set of replica Pods running at any given time. As such, it is often used to guarantee the availability of a specified number of identical Pods.

- [How a ReplicaSet works](#)
- [When to use a ReplicaSet](#)
- [Example](#)
- [Non-Template Pod acquisitions](#)
- [Writing a ReplicaSet manifest](#)
- [Working with ReplicaSets](#)
- [Alternatives to ReplicaSet](#)

## How a ReplicaSet works

A ReplicaSet is defined with fields, including a selector that specifies how to identify Pods it can acquire, a number of replicas indicating how many Pods it should be maintaining, and a pod

ReplicaSet - Kubernetes    +

kubernetes.io/docs/concepts/workloads/controllers/replicaset/#deployment-recommended

 **kubernetes** Documentation Blog Partners Community Case Studies English v1.16

## Alternatives to ReplicaSet

### Deployment (recommended)

[Deployment](#) is an object which can own ReplicaSets and update them and their Pods via declarative, server-side rolling updates. While ReplicaSets can be used independently, today they're mainly used by Deployments as a mechanism to orchestrate Pod creation, deletion and updates. When you use Deployments you don't have to worry about managing the ReplicaSets that they create. Deployments own and manage their ReplicaSets. As such, it is recommended to use Deployments when you want ReplicaSets.

### Bare Pods

Unlike the case where a user directly created Pods, a ReplicaSet replaces Pods that are deleted or terminated for any reason, such as in the case of node failure or disruptive node maintenance, such as a kernel upgrade. For this reason, we recommend that you use a ReplicaSet even if your application requires only a single Pod. Think of it similarly to a process supervisor, only it supervises multiple Pods across multiple nodes instead of individual processes on a single node. A ReplicaSet delegates local container restarts to some agent on the node (for example, Kubelet or Docker).



# Deployment



```
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: hello-world
spec:
  replicas: 2
  selector:
    matchLabels:
      my_app: elixir
template:
  metadata:
    name: my-advanced-pod
    labels:
      my_app: elixir
  spec:
    containers:
      - name: api
        image: gmile/workshop-app:v14
        env:
          - name: DATABASE_URL
            value: postgres://postgres@my-db-svc:5432/my-test-db
    resources:
      requests:
        cpu: 1m
```

```
apiVersion: apps/v1
kind: ReplicaSet ←
metadata:
  name: hello-world
spec:
  replicas: 2
  selector:
    matchLabels:
      my_app: elixir
template:
  metadata:
    name: my-advanced-pod
    labels:
      my_app: elixir
spec:
  containers:
    - name: api
      image: gmile/workshop-app:v14
      env:
        - name: DATABASE_URL
          value: postgres://postgres@my-db-svc:5432/my-test-db
  resources:
    requests:
      cpu: 1m
```

```
apiVersion: apps/v1
kind: Deployment ←
metadata:
  name: hello-world
spec:
  replicas: 2
  selector:
    matchLabels:
      my_app: elixir
template:
  metadata:
    name: my-advanced-pod
    labels:
      my_app: elixir
  spec:
    containers:
      - name: api
        image: gmile/workshop-app:v14
        env:
          - name: DATABASE_URL
            value: postgres://postgres@my-db-svc:5432/my-test-db
    resources:
      requests:
        cpu: 1m
```

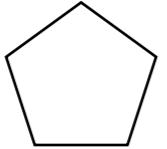
# Demo

## Deployment

# Практика

## Deployment

- \* change any pod field  
look at "watch" tab
- \* kubectl scale
- \* kubectl rollout status
- \* kubectl rollout history
- \* kubectl rollout undo
- \* kubectl apply --record



my\_app: elixir  
version: 1



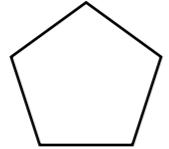
my\_app: elixir  
version: 1



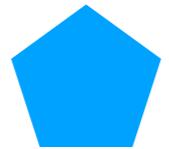
my\_app: elixir  
version: 1



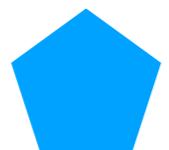
my\_app: elixir  
version: 1



my\_app: elixir  
version: 1



my\_app: elixir  
version: 1



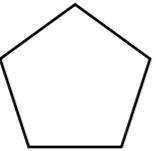
my\_app: elixir  
version: 1



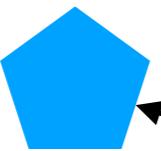
my\_app: elixir  
version: 1



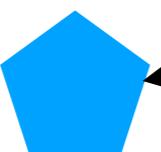
my-app-srv  
my\_app: elixir  
version: 1



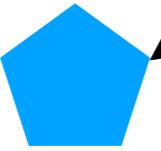
my\_app: elixir  
version: 1



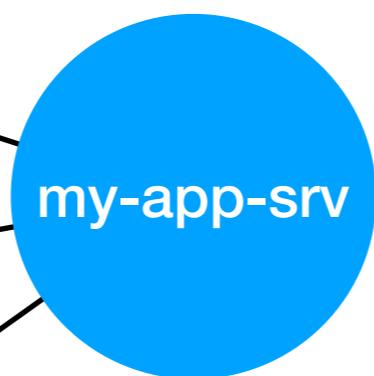
my\_app: elixir  
version: 1



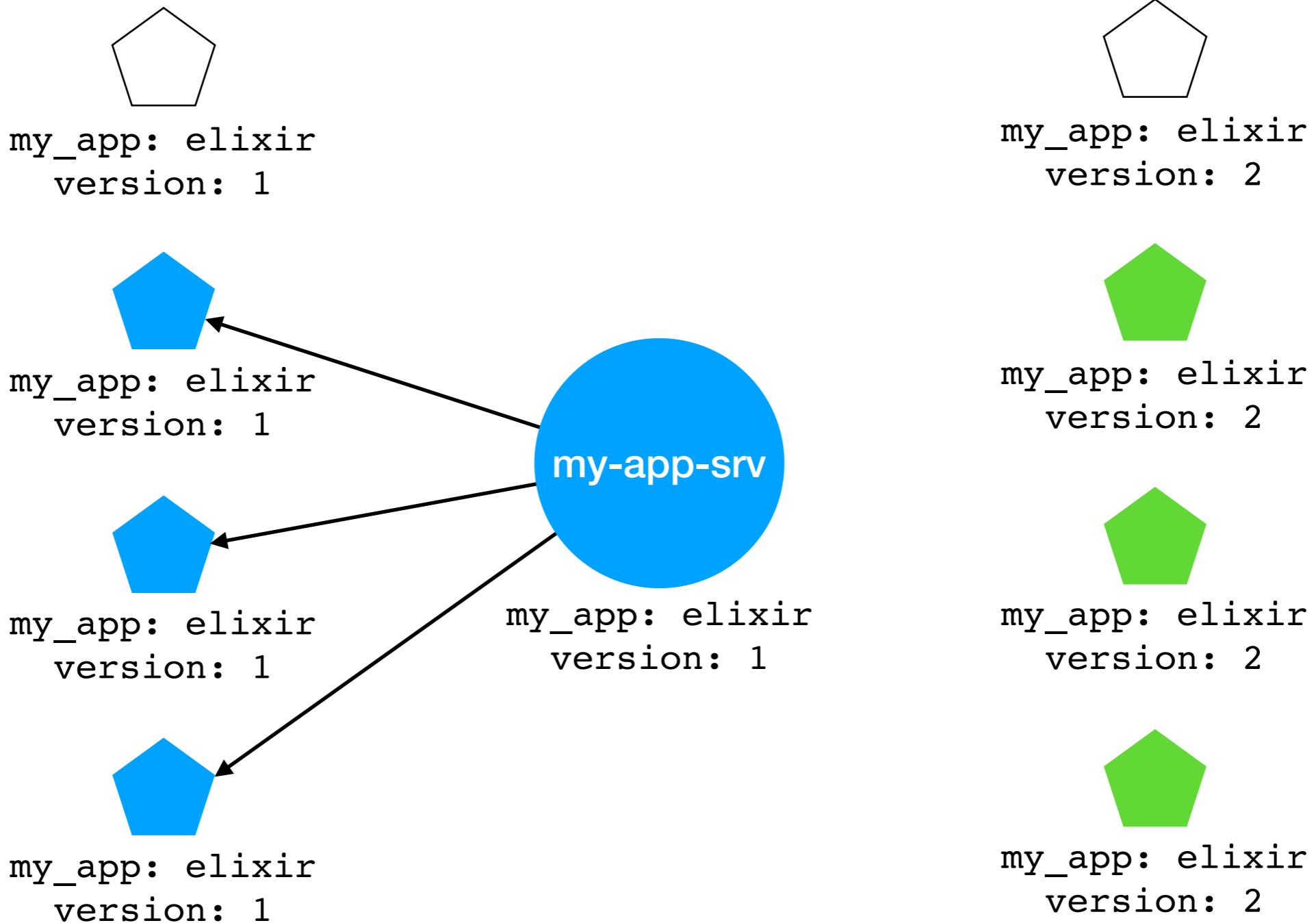
my\_app: elixir  
version: 1

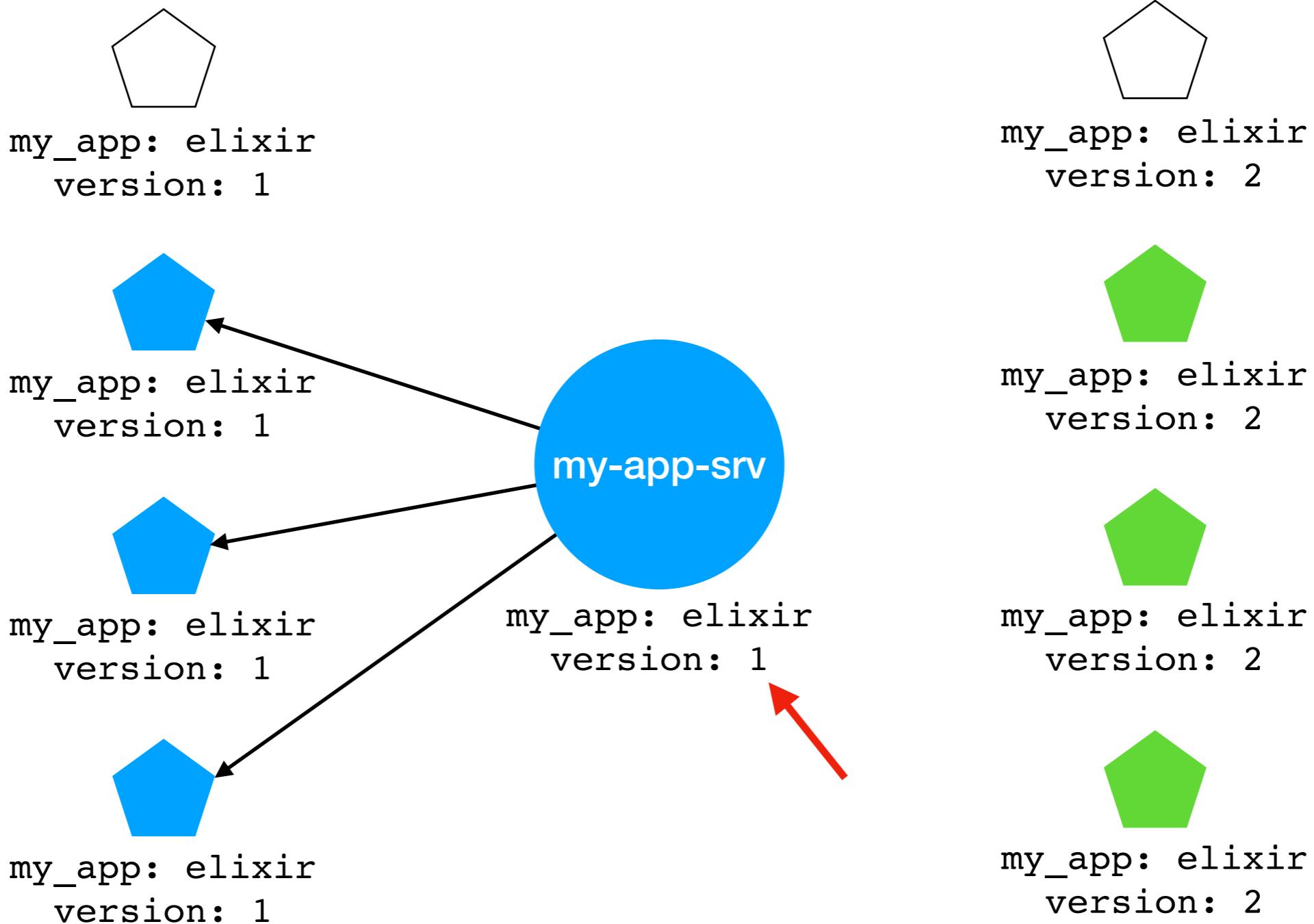


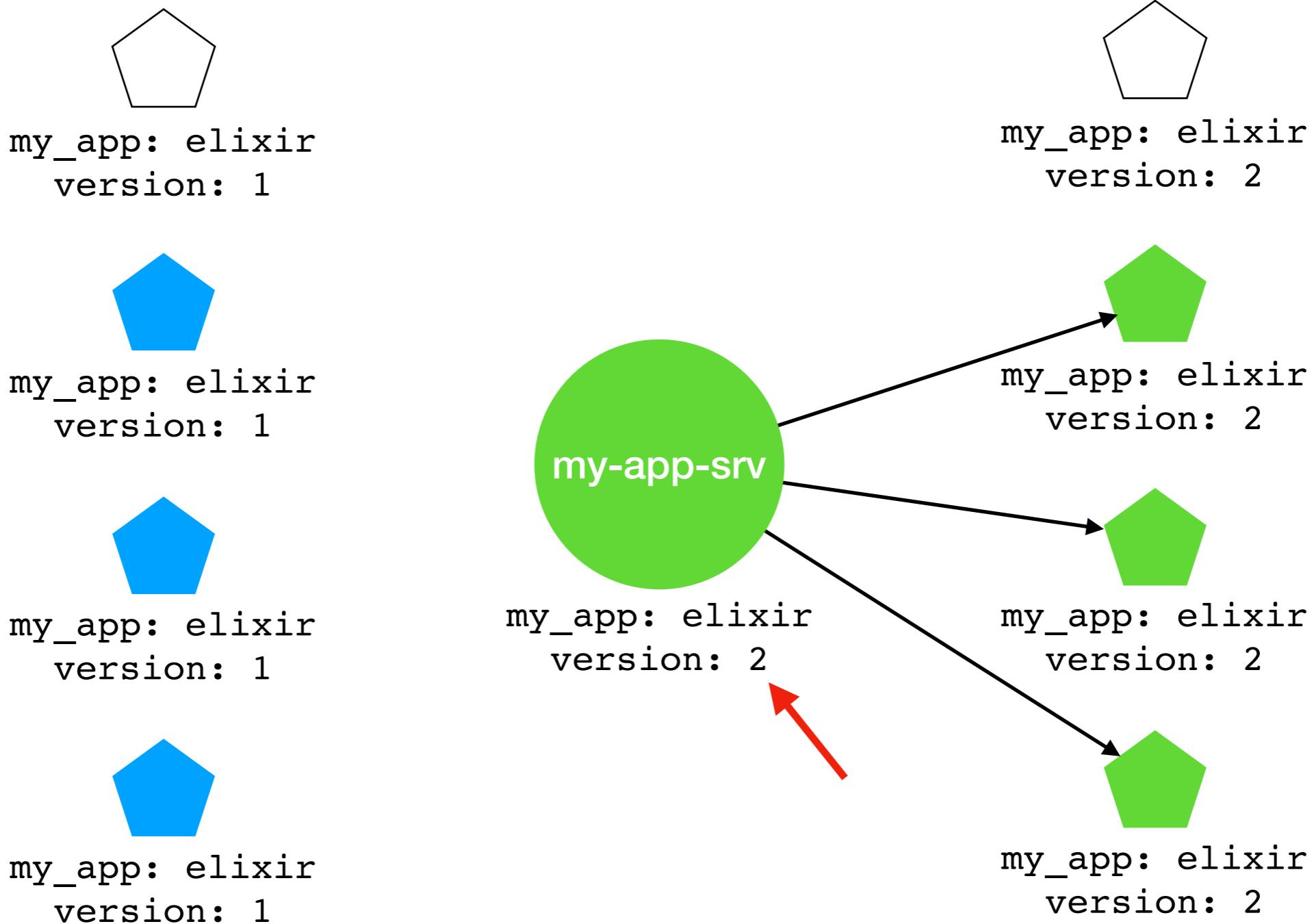
my\_app: elixir  
version: 1



my\_app: elixir  
version: 1







# Blue/Green Deployments on Kubernetes

Sept. 15, 2017

kubernetes

 Tweet

*For those that want to dive right in, I have put up a tutorial and some sample manifests on github. Check it out at <https://github.com/IanLewis/kubernetes-bluegreen-deployment-tutorial>*

Kubernetes has a really awesome built-in feature called [Deployments](#). Deployments come with the ability to do rolling updates of containers when you update your application to a new version. Rolling updates are a great way to update applications because your app uses about the same amount of resources during an update as it does when not updating, all with minimal impact to performance and availability.

However, there are many legacy applications out there that don't work well with rolling updates. Some applications simply need to deploy a new version and cut over to it right away. For this, we need to perform a [blue/green deployment](#). With blue/green deployments a new copy of the application (green) is deployed alongside the existing version (blue). Then the ingress/router to the app is updated to switch to the new version (green). You then need to wait for the old (blue) version to finish the requests sent to it, but for the most part traffic to the app changes to the new version all at once.





Ian Lewis

English Blog

日本語ブログ

About

```
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
  name: nginx-1.11
spec:
  replicas: 3
  template:
    metadata:
      labels:
        name: nginx
        version: "1.11"
    spec:
      containers:
        - name: nginx
          image: nginx:1.11
          ports:
            - name: http
              containerPort: 80
```

... I can create the new deployment like so.

```
$ kubectl apply -f green.yaml
```

Now I have two deployments but the service is still pointing to the "blue" one.



## Automating

You can automate your blue/green deployment a bit with some scripting. The following script takes the name of the service, the version you want to deploy, and the path to the green deployment's yaml file and runs through a full blue/green deployment using kubectl to output raw JSON from the API and parsing it with jq. It waits for the green deployment to become ready by inspecting the `status.conditions` on the deployment object before updating the service definition.

The script makes some assumptions for simplicity's sake, such as expecting the deployment's name to be of the form `<servicename>-<version>` - and that there are name and version labels that are used for the selector. kubectl is super flexible you can imagine writing something like this for your own needs.

```
#!/bin/bash

# bg-deploy.sh <servicename> <version> <green-deployment.yaml>
# Deployment name should be <service>-<version>

DEPLOYMENTNAME=$1-$2
SERVICE=$1
VERSION=$2
DEPLOYMENTFILE=$3

kubectl apply -f $DEPLOYMENTFILE

# Wait until the Deployment is ready by checking the MinimumReplicasAvailable condition.
READY=$(kubectl get deploy $DEPLOYMENTNAME -o json | jq '.status.conditions[] | select(.reason == "MinimumReplicasAvailable") | .status' | tr -d '"')
while [[ "$READY" != "True" ]]; do
    READY=$(kubectl get deploy $DEPLOYMENTNAME -o json | jq '.status.conditions[] | select(.reason == "MinimumReplicasAvailable") | .status' | tr -d '"')
    sleep 5
done

# Update the service selector with the new version
kubectl patch svc $SERVICE -p '{"spec":{"selector": {"name": "'$SERVICE'"}}}'
```

Deployments - Kubernetes X +

kubernetes.io/docs/concepts/workloads/controllers/deployment/   :

 **kubernetes** Documentation Blog Partners Community Case Studies English ▾ v1.16 ▾

# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE  

## Concepts

- ▶ Overview
- ▶ Cluster Architecture
- ▶ Containers
- ▼ Workloads
  - ▶ Pods
  - ▼ Controllers
    - ReplicaSet
    - ReplicationController
    - Deployments**
  - StatefulSets
  - DaemonSet
  - Garbage Collection
  - TTL Controller for Finished Resources
  - Jobs - Run to Completion
  - CronJob
- ▶ Services, Load Balancing, and Networking

## Deployments

A Deployment provides declarative updates for [Pods](#) and [ReplicaSets](#).

You describe a *desired state* in a Deployment, and the Deployment Controller changes the actual state to the desired state at a controlled rate. You can define Deployments to create new ReplicaSets, or to remove existing Deployments and adopt all their resources with new Deployments.



**Note:** Do not manage ReplicaSets owned by a Deployment. Consider opening an issue in the main Kubernetes repository if your use case is not covered below.

- [Use Case](#)
- [Creating a Deployment](#)
- [Updating a Deployment](#)
- [Rolling Back a Deployment](#)
- [Scaling a Deployment](#)

A decorative element consisting of two yellow and purple striped party hats with pink ribbons and small colorful confetti pieces.

# Service

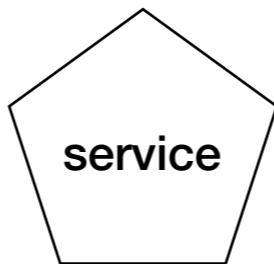
Type: NodePort

## Worker node



yet-another-pod  
10.0.16.99

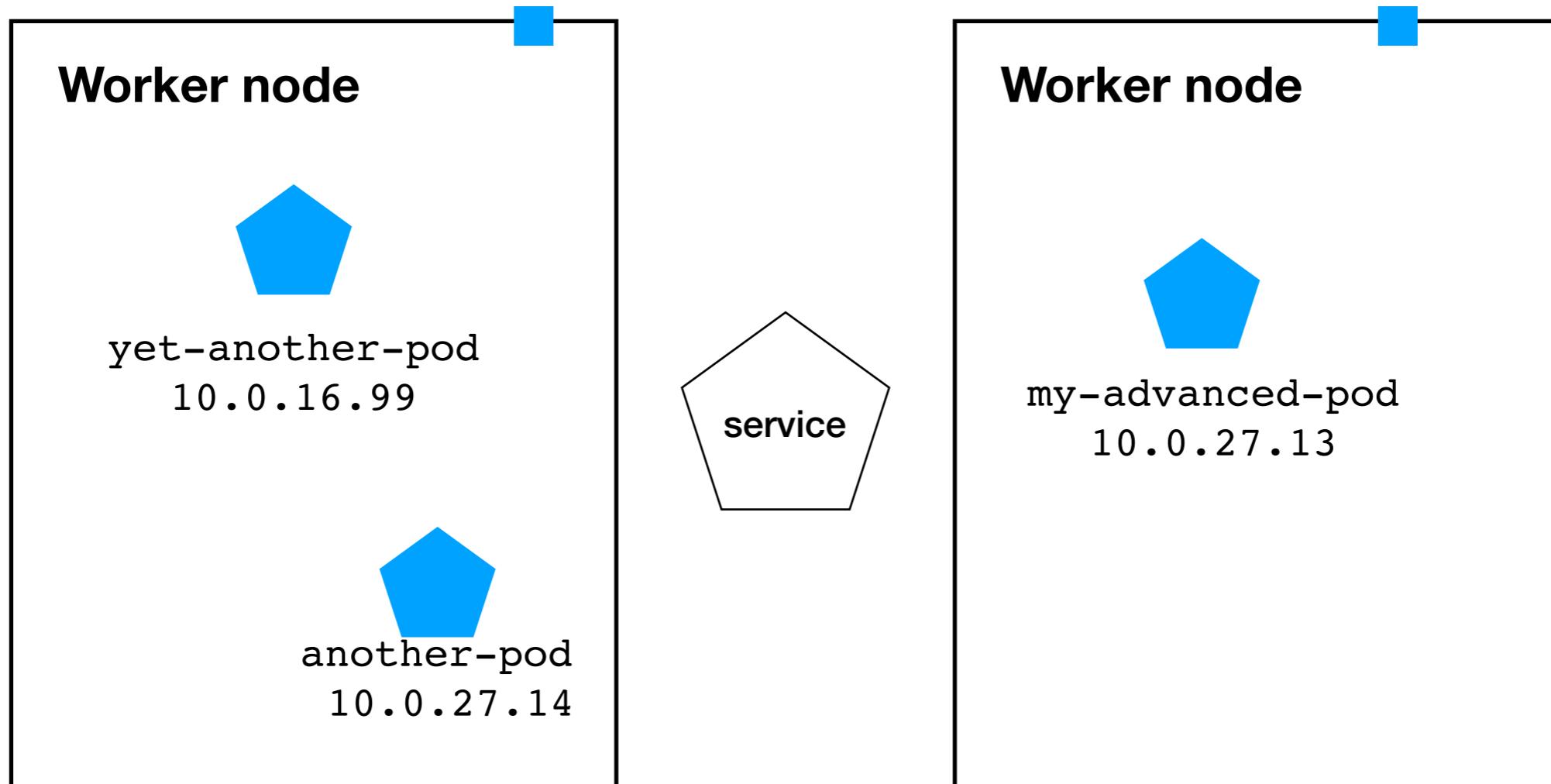
another-pod  
10.0.27.14



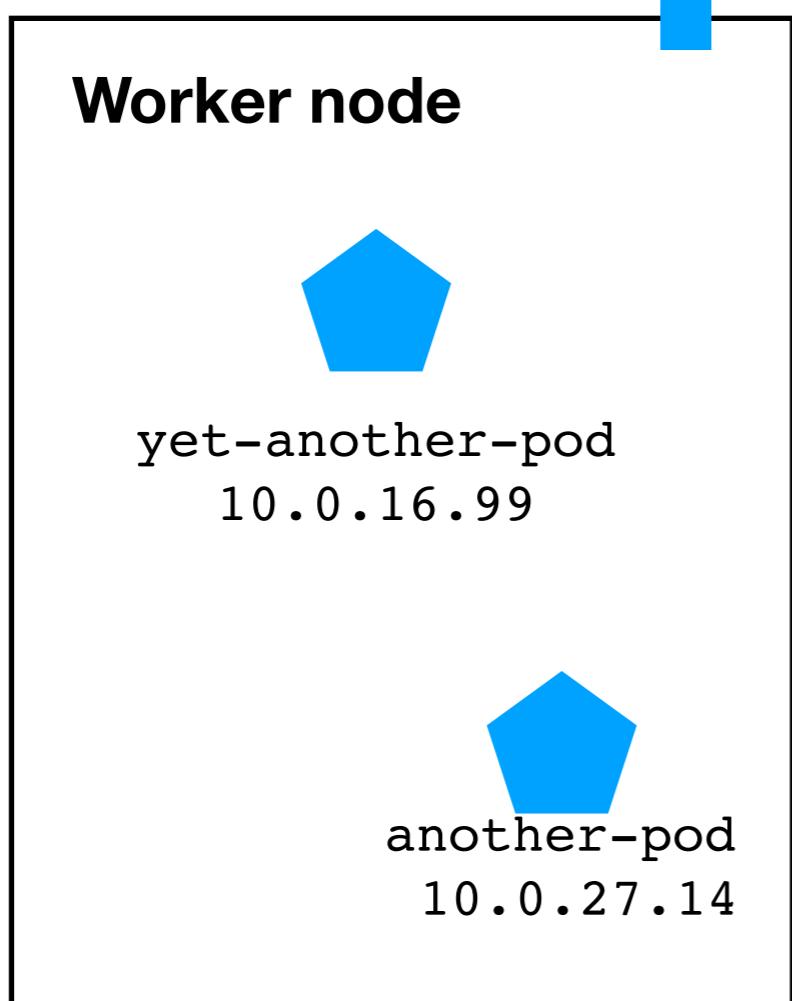
## Worker node



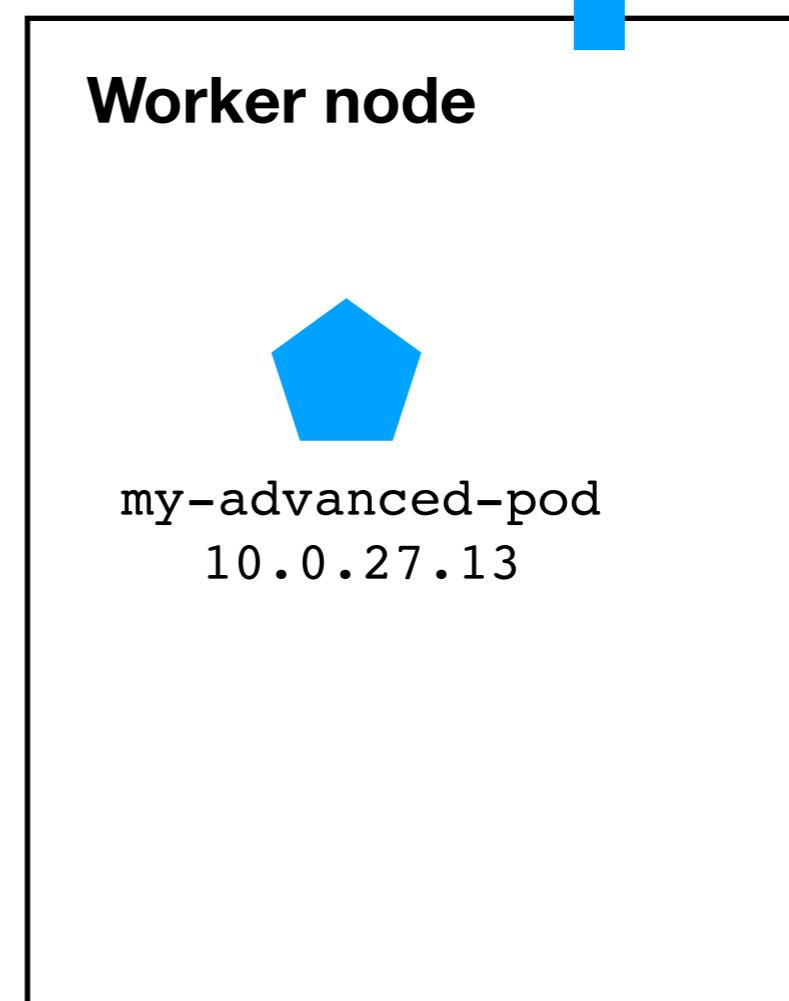
my-advanced-pod  
10.0.27.13

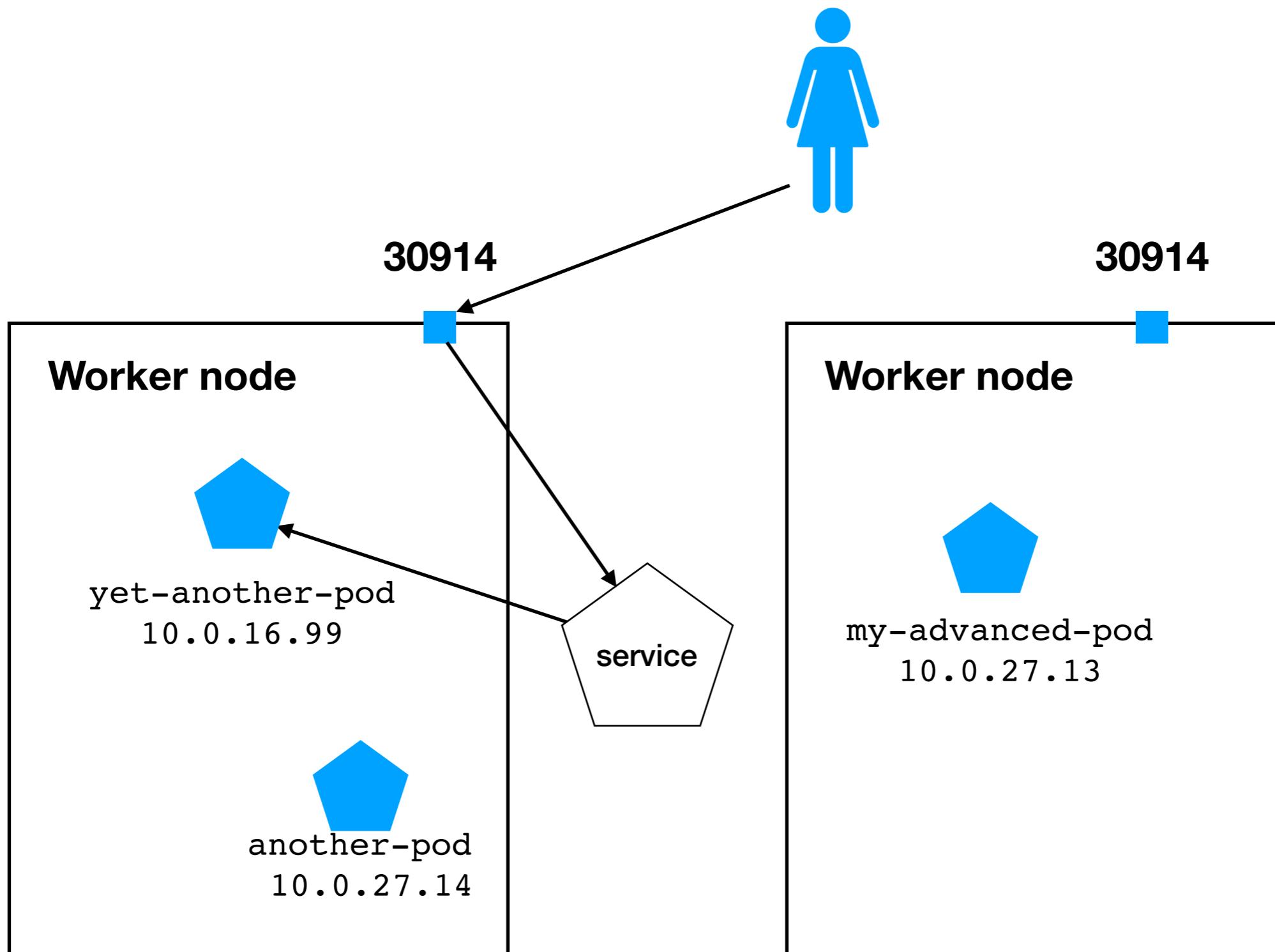


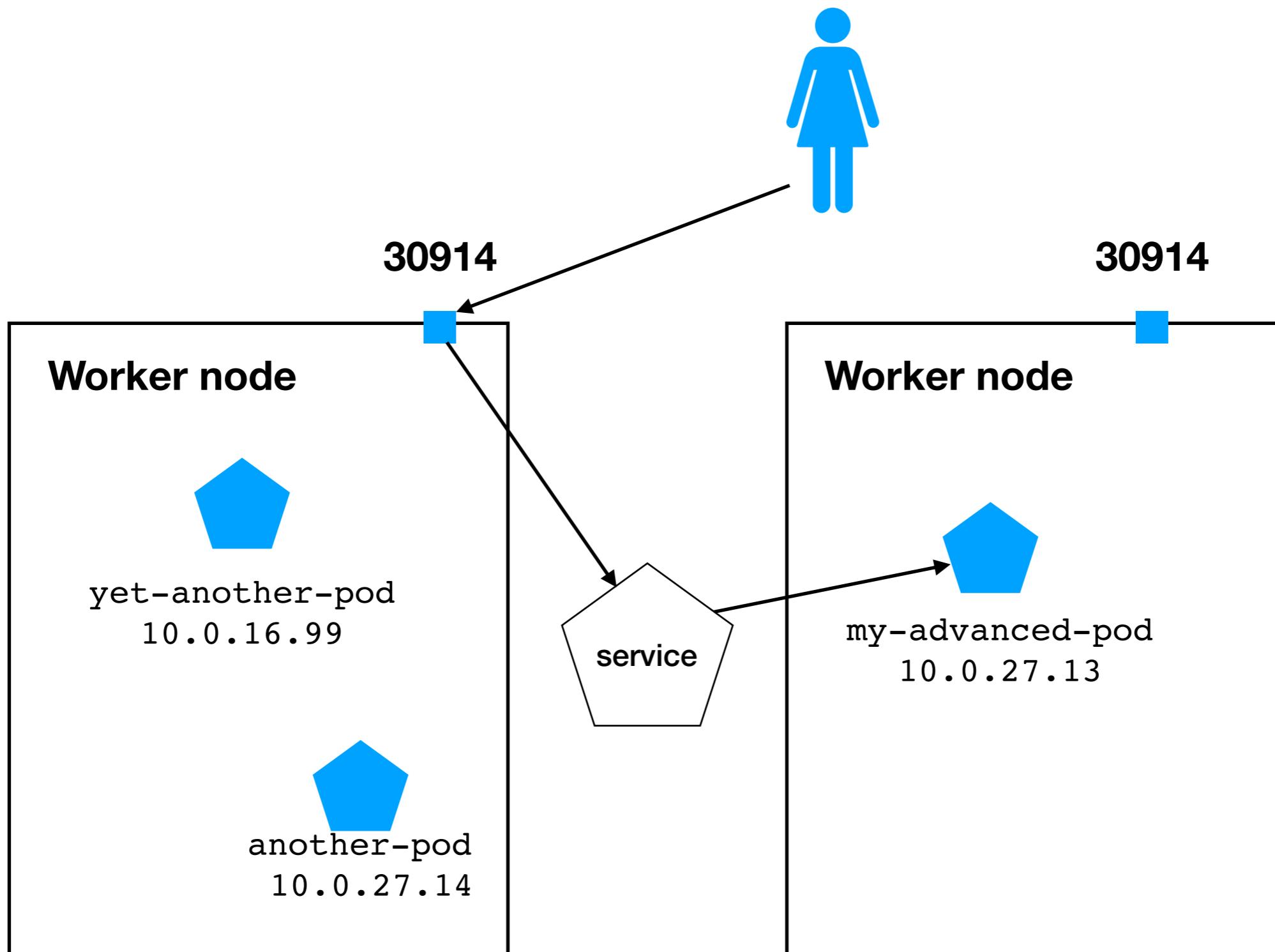
**30914**

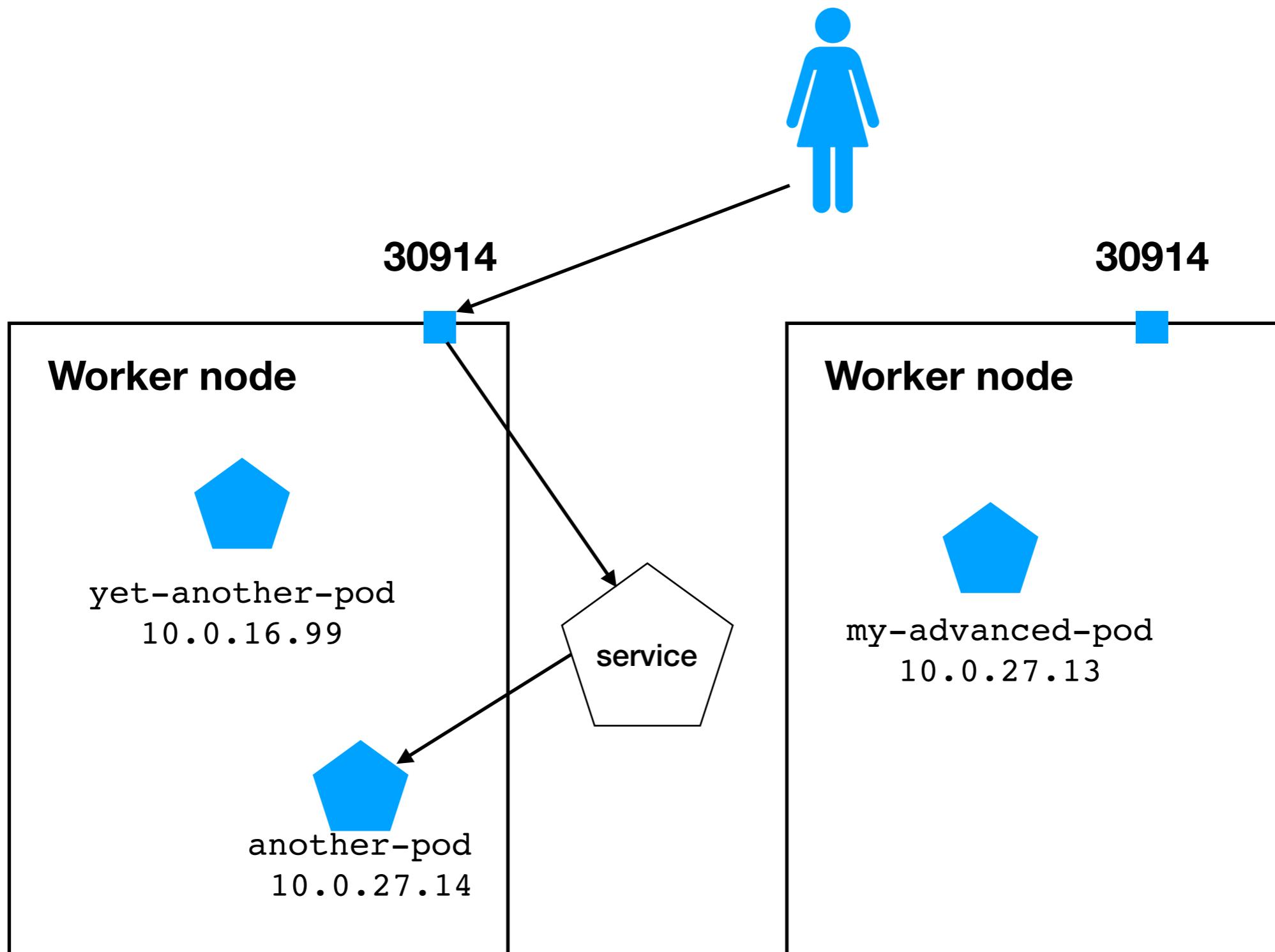


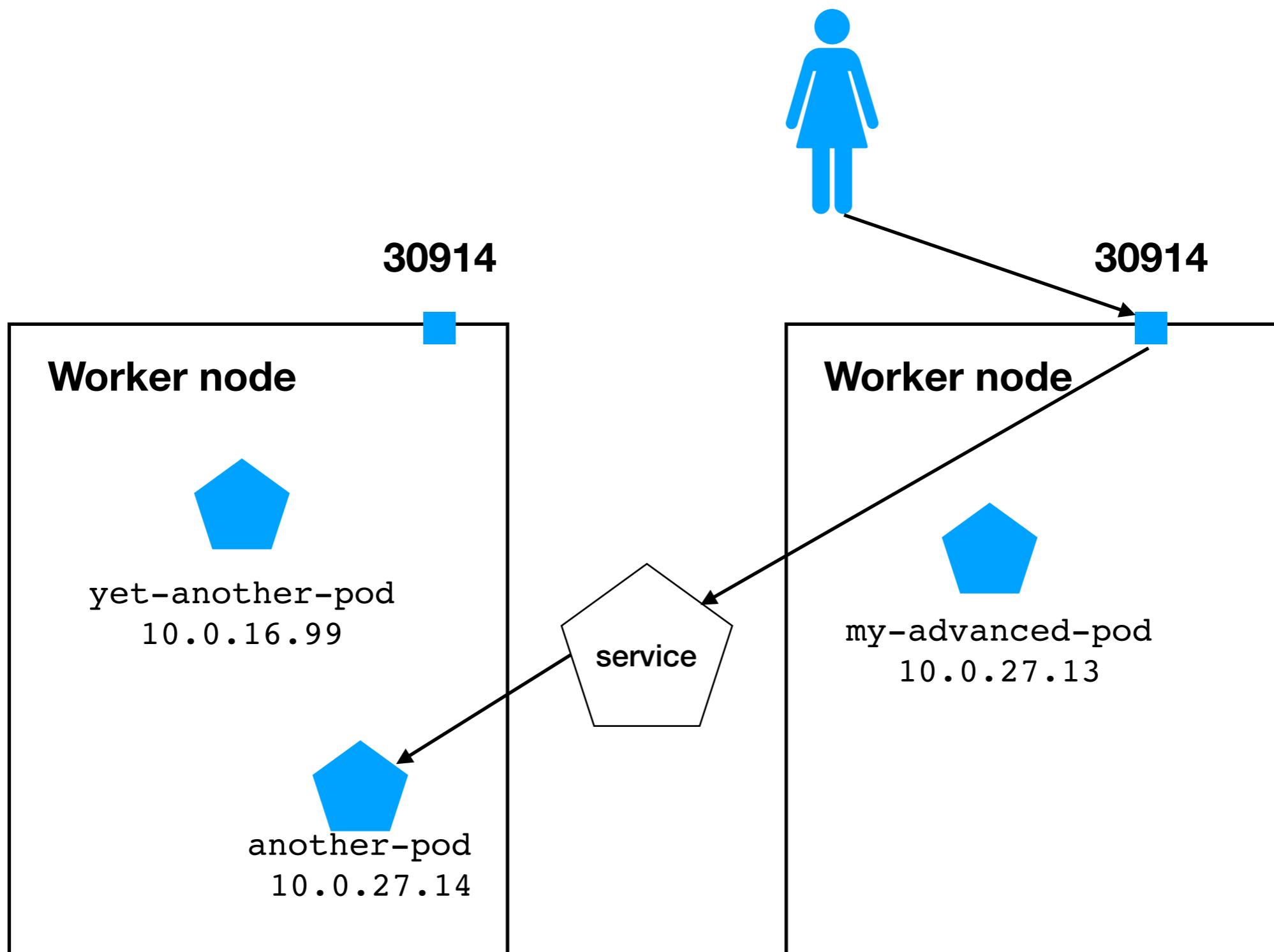
**30914**





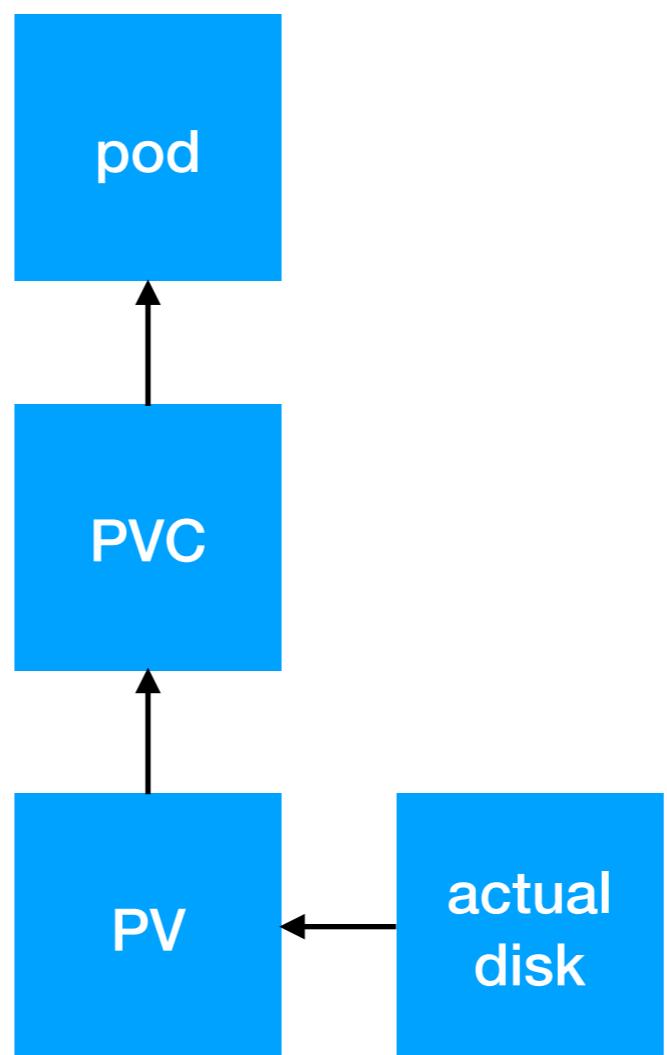


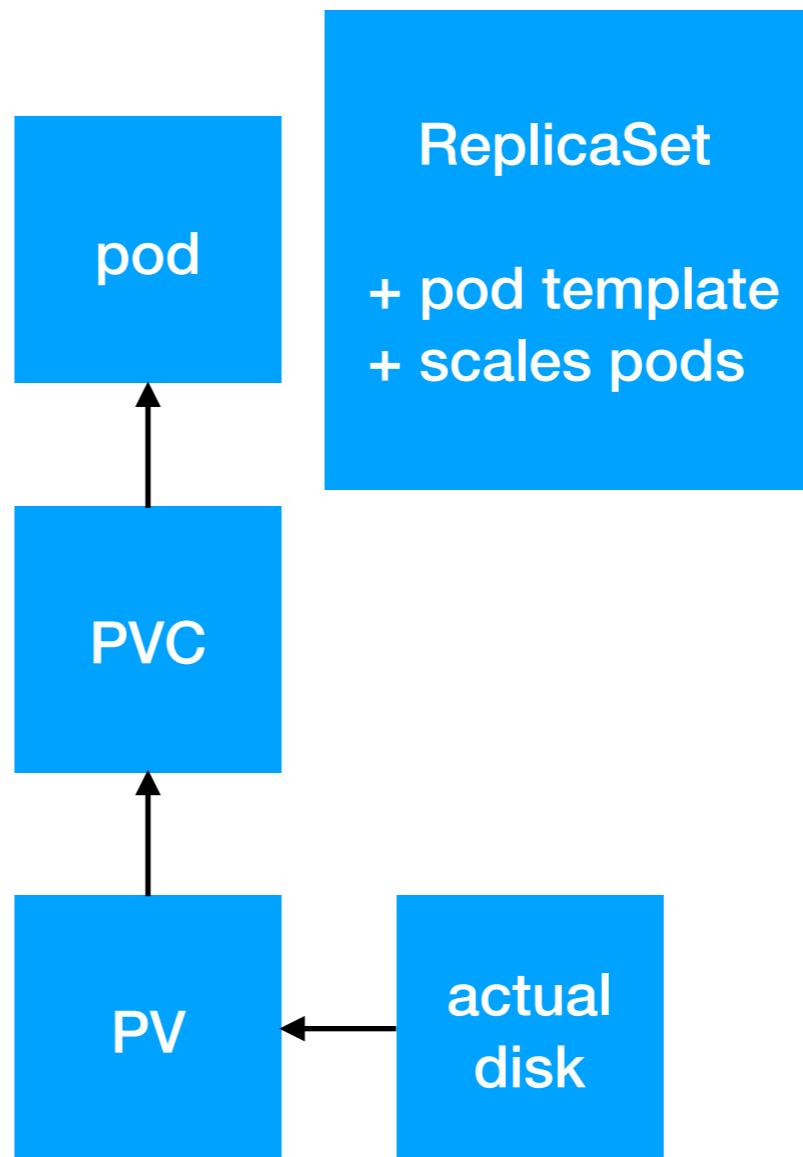


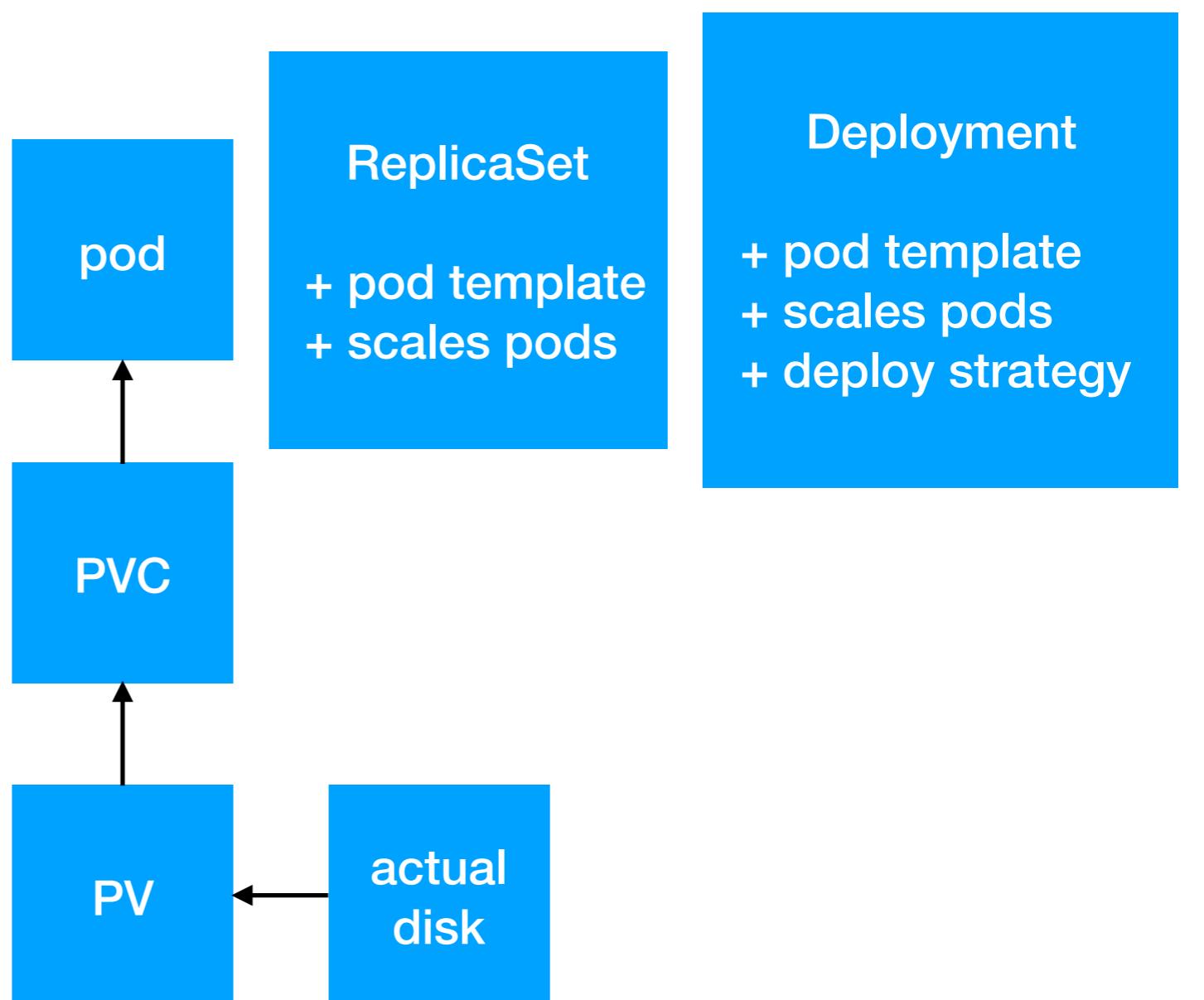


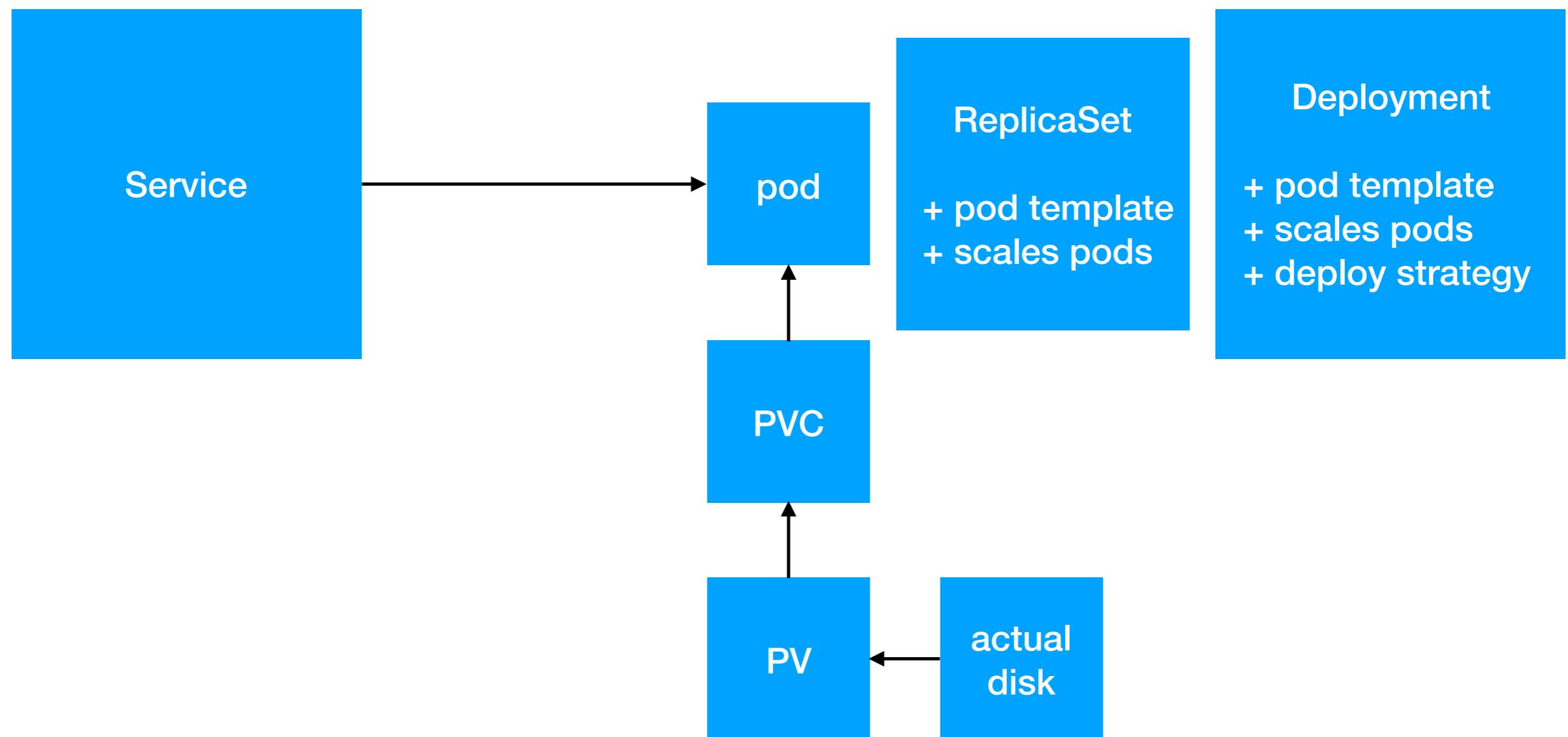
# **Summary**

pod

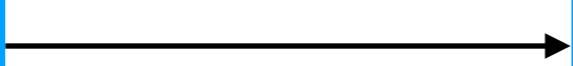








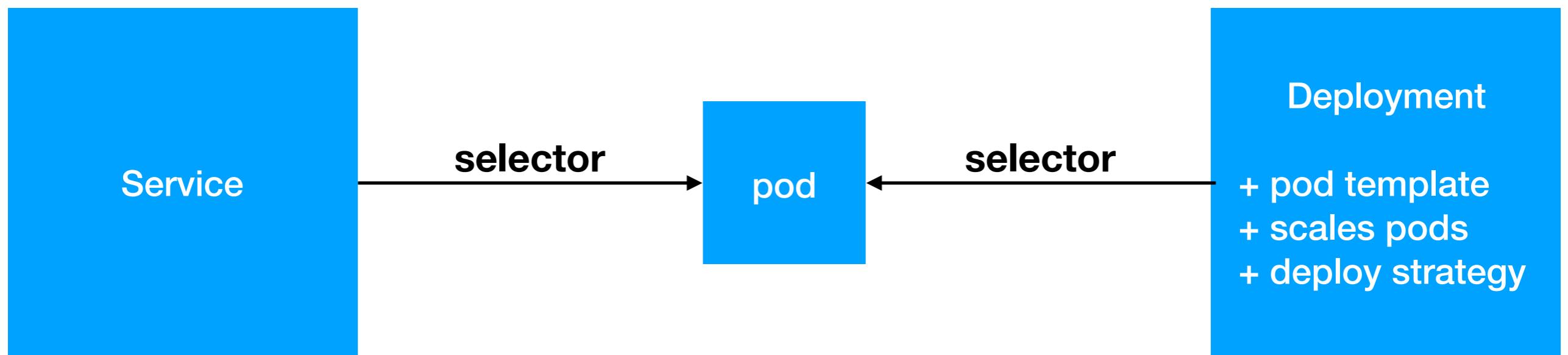
Service

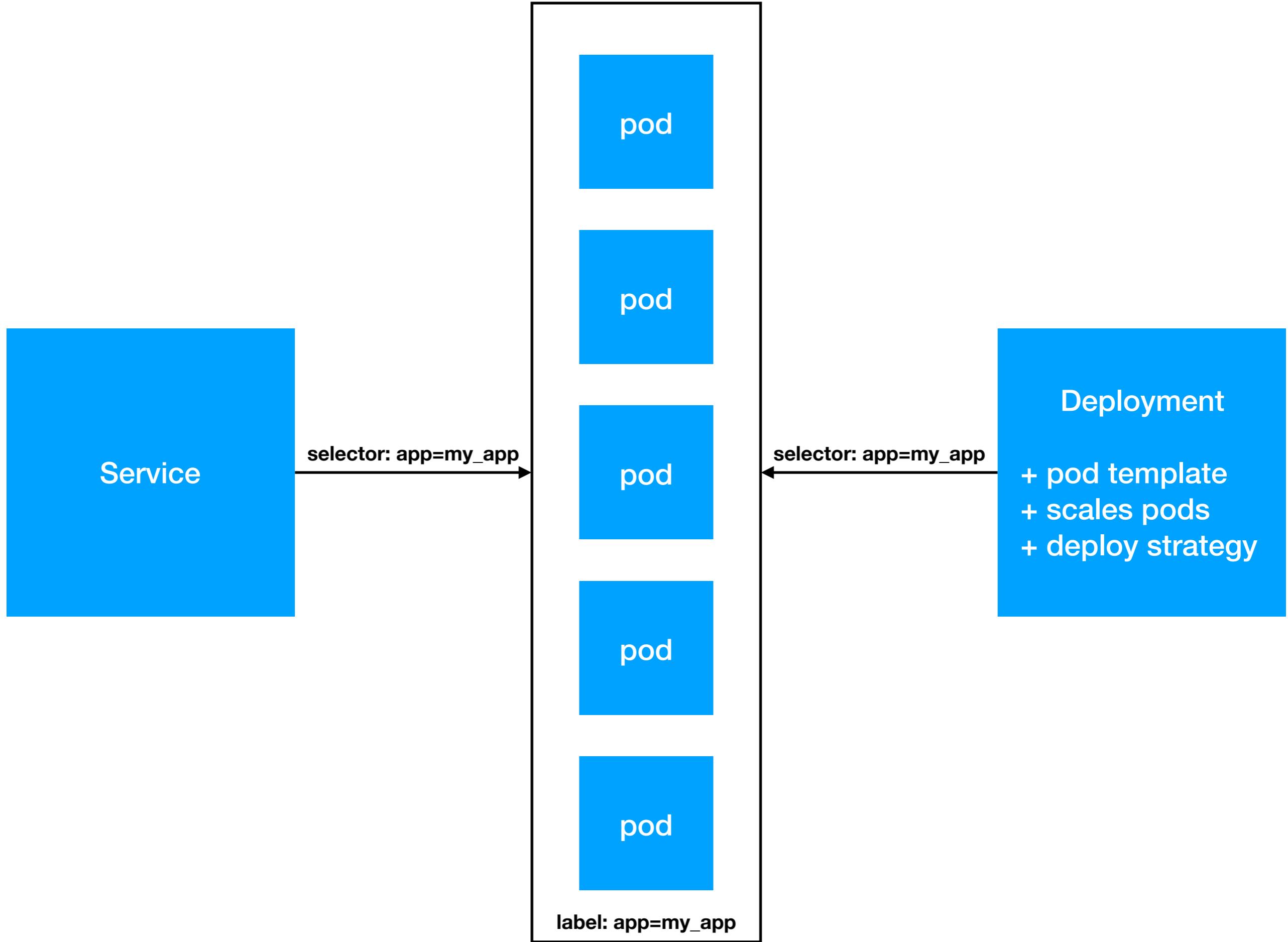


pod

Deployment

- + pod template
- + scales pods
- + deploy strategy





# Demo

## NodePort Service

# Практика

## NodePort Service

Service - Kubernetes

kubernetes.io/docs/concepts/services-networking/service/

**kubernetes**

Documentation Blog Partners Community Case Studies English v1.16

# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE Search

## Concepts

- ▶ Overview
- ▶ Cluster Architecture
- ▶ Containers
- ▶ Workloads
- ▼ Services, Load Balancing, and Networking
  - Endpoint Slices
  - Service**

DNS for Services and Pods

Connecting Applications with Services

Ingress

Ingress Controllers

Network Policies

Adding entries to Pod /etc/hosts with HostAliases

IPv4/IPv6 dual-stack

- ▶ Storage

- ▶ Configuration

## Service

An abstract way to expose an application running on a set of Pods as a network service.

With Kubernetes you don't need to modify your application to use an unfamiliar service discovery mechanism. Kubernetes gives Pods their own IP addresses and a single DNS name for a set of Pods, and can load-balance across them.

- [Motivation](#)
- [Service resources](#)
- [Defining a Service](#)
- [Virtual IPs and service proxies](#)
- [Multi-Port Services](#)
- [Choosing your own IP address](#)
- [Discovering services](#)
- [Headless Services](#)
- [Publishing Services \(ServiceTypes\)](#)
- [Shortcomings](#)
- [Virtual IP implementation](#)

# **5. Production and you**



# **ConfigMap**



# **Secret**

Configure a Pod to Use a ConfigMap

kubernetes.io/docs/tasks/configure-pod-container/configure-pod-configmap/

**kubernetes** Documentation Blog Partners Community Case Studies English v1.16

Tasks

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE Search

## Tasks

▶ Install Tools

▼ Configure Pods and Containers

Assign Memory Resources to Containers and Pods

Assign CPU Resources to Containers and Pods

Configure GMSA for Windows Pods and containers

Configure RunAsUserName for Windows pods and containers

Configure Quality of Service for Pods

Assign Extended Resources to a Container

Configure a Pod to Use a Volume for Storage

Configure a Pod to Use a PersistentVolume for Storage

Configure a Pod to Use a Projected Volume for Storage

Configure a Security Context for a Pod or Container

# Configure a Pod to Use a ConfigMap



ConfigMaps allow you to decouple configuration artifacts from image content to keep containerized applications portable. This page provides a series of usage examples demonstrating how to create ConfigMaps and configure Pods using data stored in ConfigMaps.

- [Before you begin](#)
- [Create a ConfigMap](#)
- [Define container environment variables using ConfigMap data](#)
- [Configure all key-value pairs in a ConfigMap as container environment variables](#)
- [Use ConfigMap-defined environment variables in Pod commands](#)
- [Add ConfigMap data to a Volume](#)
- [Understanding ConfigMaps and Pods](#)
- [What's next](#)

Secrets - Kubernetes    X    +

kubernetes.io/docs/concepts/configuration/secret/

 **kubernetes**

Documentation Blog Partners Community Case Studies English v1.16

# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE Search

## Concepts

- ▶ Overview
- ▶ Cluster Architecture
- ▶ Containers
- ▶ Workloads
- ▶ Services, Load Balancing, and Networking
- ▶ Storage
- ▼ Configuration
  - Configuration Best Practices
  - Resource Bin Packing for Extended Resources
  - Managing Compute Resources for Containers
  - Pod Overhead
  - Assigning Pods to Nodes
  - Taints and Tolerations
  - Secrets
  - Organizing Cluster Access Using kubeconfig Files

## Secrets

Kubernetes `secret` objects let you store and manage sensitive information, such as passwords, OAuth tokens, and ssh keys. Putting this information in a `secret` is safer and more flexible than putting it verbatim in a Pod definition or in a container image. See [Secrets design document](#) for more information.

- [Overview of Secrets](#)
- [Using Secrets](#)
- [Details](#)
- [Use cases](#)
- [Best practices](#)
- [Security Properties](#)

## Overview of Secrets

A Secret is an object that contains a small amount of sensitive data such as a password, a token, or a key. Such information might

# **Demo / Практика**

**Создаем конфигмап и секрет**





**У нас скопилось много файлов  
с захардкоженными значениями.  
Как теперь со всем этим  
развернуть прод?**

Helm Docs | Helm

v3.helm.sh

You are viewing info for Helm 3 - check the [version FAQs](#) or return to [Helm 2](#) for latest stable version.

**Get Helm** **Blog** **Docs** **Charts**

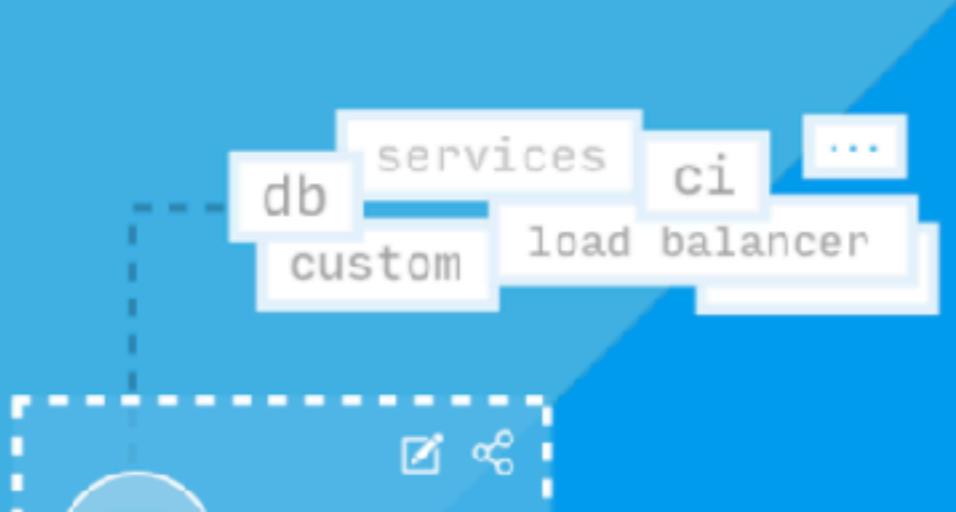
# Helm 3: The package manager for Kubernetes

Helm is the best way to find, share, and use software built for Kubernetes.



## What is Helm?

Helm helps you manage Kubernetes applications – Helm Charts help you define, install, and upgrade even the most complex Kubernetes application.



Charts are easy to create, version, share, and publish.

The screenshot shows the GitHub repository page for 'helm/helm'. The repository has 495 releases, 15.3k stars, and 4.8k forks. It includes sections for Code, Issues (887), Pull requests (66), Actions, Projects, Wiki, Security, and Insights. A summary bar shows 5,054 commits, 24 branches, 0 packages, 99 releases, 365 contributors, and Apache-2.0 license. The main feed lists recent commits from various authors, including zwwhdls and hickeyma, with timestamps ranging from 5 hours ago to 2 months ago.

The Kubernetes Package Manager <https://helm.sh>

cncf chart kubernetes helm charts

5,054 commits 24 branches 0 packages 99 releases 365 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

zwwhdls and hickeyma fix this inconsistency in the docs (#7157) ... ✓ Latest commit 36a8001 5 hours ago

.circleci fix(ci): pin golangci-lint to v1.21.0 24 days ago

.github Update to specify version command output. 2 years ago

cmd/helm fix this inconsistency in the docs (#7157) 5 hours ago

internal Merge pull request #6914 from baccongobbler/remove-serverconfig 11 days ago

pkg Merge pull request #7026 from sco11morgan/remove-lint-chart-name-check 22 hours ago

scripts fix(tests): mapfile is not available on MacOS 3 days ago

testdata fix(getter): set up TLS options during .Get() last month

.gitignore chore(docs): move docs to helm-www 5 months ago

.golangci.yml Used timeout instead of deadline 27 days ago

CONTRIBUTING.md docs(CONTRIBUTING): add Helm 2's support contract 2 months ago

KEYS chore(\*): Add GPG key for Adam 3 months ago

# **Demo / Практика**

**Конвертируем конфиги  
в Helm-тэмплейты**

**my-service.yaml**

**my-configmap.yaml**

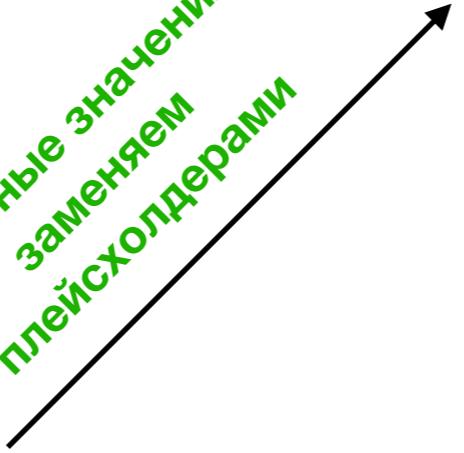
**my-deployment.yaml**

**my-disk-stuff.yaml**

**my-ingress.yaml**

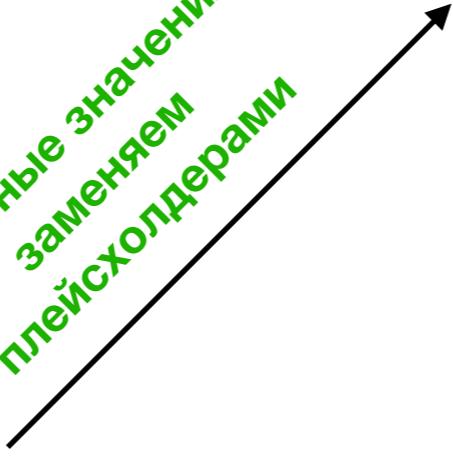
**my-service.yaml**  
**my-configmap.yaml**  
**my-deployment.yaml**  
**my-disk-stuff.yaml**  
**my-ingress.yaml**

Реальные значения  
заменяем  
плейсхолдерами

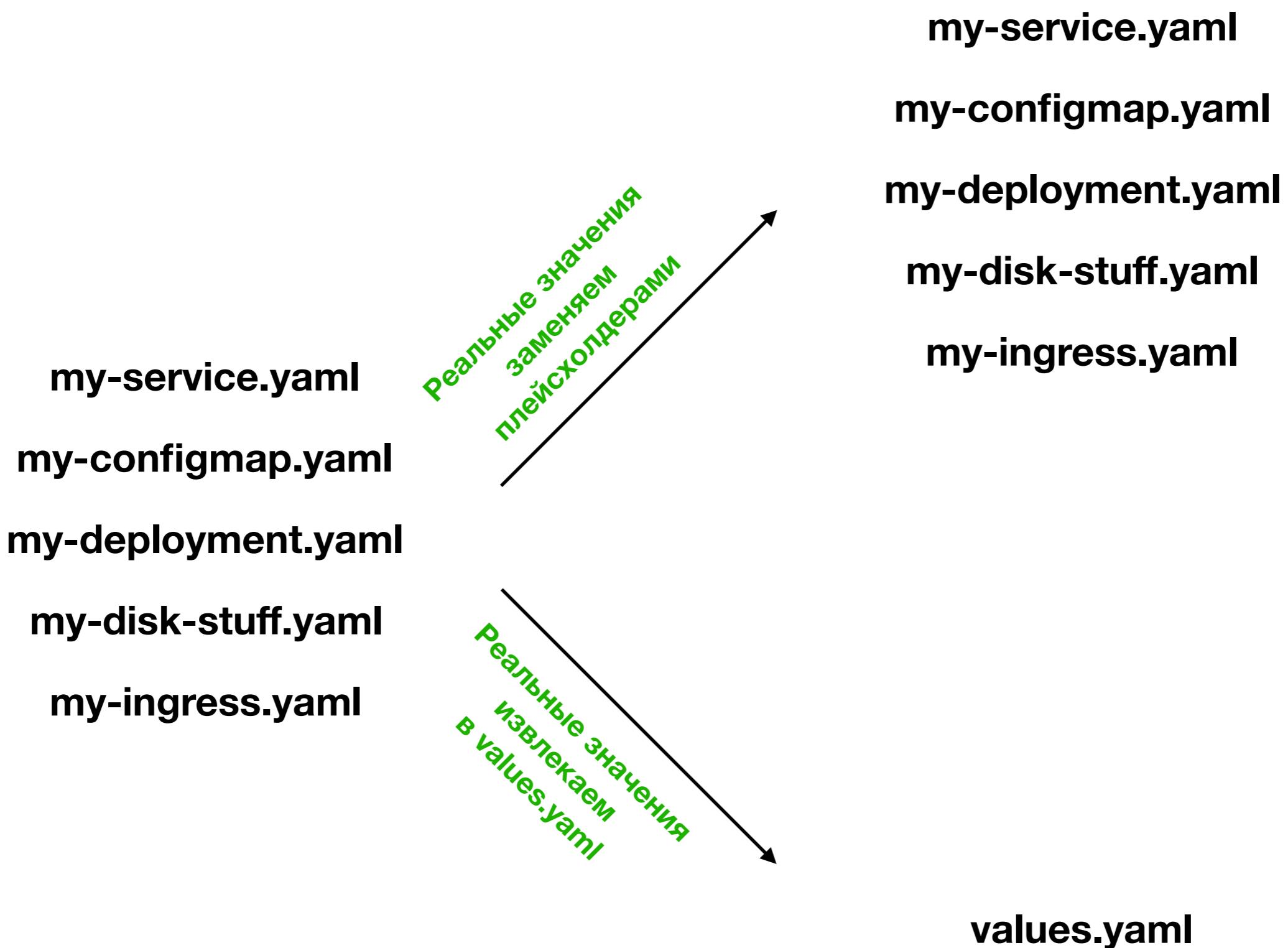


**my-service.yaml**  
**my-configmap.yaml**  
**my-deployment.yaml**  
**my-disk-stuff.yaml**  
**my-ingress.yaml**

Реальные значения  
заменяем  
плейсхолдерами



**my-service.yaml**  
**my-configmap.yaml**  
**my-deployment.yaml**  
**my-disk-stuff.yaml**  
**my-ingress.yaml**



**my-service.yaml**

**my-configmap.yaml**

**my-deployment.yaml**

**my-disk-stuff.yaml**

**my-ingress.yaml**

**values.yaml**

**my-service.yaml**

**my-configmap.yaml**

**my-deployment.yaml**

**my-disk-stuff.yaml**

**my-ingress.yaml**

**dev-values.yaml**

**my-service.yaml**

**my-configmap.yaml**

**my-deployment.yaml**

**my-disk-stuff.yaml**

**my-ingress.yaml**

**staging-values.yaml**

**dev-values.yaml**

**my-service.yaml**

**my-configmap.yaml**

**my-deployment.yaml**

**my-disk-stuff.yaml**

**my-ingress.yaml**

**staging-values.yaml**

**dev-values.yaml**

**prod-values.yaml**

helm | helm.sh/docs/chart\_template\_guide/ You are viewing Helm 2 (latest stable). Helm 3 is here. Visit the [Helm 3 docs](#) or read the [blog](#) for details.

**HELM Documentation**

Search...

[Docs Home](#)

[Using Helm](#)

[Helm Commands](#)

[Charts](#)

[Developing Templates](#)

[Best Practices](#)

[Related Projects](#)

[Architecture](#)

[Developer Guide](#)

[History](#)

[Glossary](#)

[Find Charts](#)

[Get Helm](#)

[Blog](#)

[Docs](#)

[Charts](#)

[Twitter](#)

v2.14.3 ▾

# The Chart Template Developer's Guide

This guide provides an introduction to Helm's chart templates, with emphasis on the template language.

Templates generate manifest files, which are YAML-formatted resource descriptions that Kubernetes can understand. We'll look at how templates are structured, how they can be used, how to write Go templates, and how to debug your work.

This guide focuses on the following concepts:

- The Helm template language
- Using values
- Techniques for working with templates

This guide is oriented toward learning the ins and outs of the Helm

Helm | helm.sh/docs/chart\_template\_guide/ You are viewing Helm 2 (latest stable). Helm 3 is here. Visit the Helm 3 docs or read the blog for details.

Documentation

Search...

Get Helm Blog Docs Charts v2.14.3

Docs Home Using Helm Helm Commands Charts Developing Templates Best Practices Related Projects Architecture Developer Guide History Glossary Find Charts

# The Chart Template Developer's Guide

This guide provides an introduction to Helm's chart templates, with emphasis on the template language.

Templates generate manifest files, which are YAML-formatted resource descriptions that Kubernetes can understand. We'll look at how templates are structured, how they can be used, how to write Go templates, and how to debug your work.

This guide focuses on the following concepts:

- The Helm template language
- Using values
- Techniques for working with templates

This guide is oriented toward learning the ins and outs of the Helm



**Многие популярные приложения  
уже контейнеризированы.  
Есть ли для них готовые  
helm чарты?**

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 2,899,387 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 

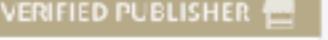
Analytics  
 Application Frameworks  
 Application Infrastructure  
 Application Services  
 Base Images  
 Databases  
 DevOps Tools  
 Featured Images  
 Messaging Services

**couchbase**  10M+ 509 Downloads Stars

Updated an hour ago

Couchbase Server is a NoSQL document database with a distributed architecture.

Container Linux x86-64 Storage Application Frameworks

**Db2 Developer-C Edition**  DOCKER CERTIFIED 

By IBM • Updated 5 months ago

Full feature, free version for non-production environments. Ideal for developers.

Container Docker Certified Linux x86-64 IBM POWER IBM Z Analytics Databases

**postgres**  10M+ 7.3K Downloads Stars

Updated an hour ago

The PostgreSQL object-relational database system provides reliability and data integrity.

wordpress - Docker Hub    +

hub.docker.com/\_/wordpress

 dockerhub   

Explore Sign In Pricing    Get Started

# wordpress ☆

Docker Official Images

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

 10M+

Container    Linux    ARM 64    32bit    x86-64    PowerPC 64 LE    IBM Z    ARM

Application Services    Official Image

Linux - ARM ( latest )

Copy and paste to pull this image

`docker pull wordpress`

[View Available Tags](#)

Description    Reviews    Tags

## Supported tags and respective Dockerfile links

- [5.3.0-php7.2-apache](#), [5.3-php7.2-apache](#), [5-php7.2-apache](#), [php7.2-apache](#), [5.3.0-php7.2](#), [5.3-php7.2](#), [5-php7.2](#), [php7.2](#)
- [5.3.0-php7.2-fpm](#), [5.3-php7.2-fpm](#), [5-php7.2-fpm](#), [php7.2-fpm](#)
- [5.3.0-php7.2-fpm-alpine](#), [5.3-php7.2-fpm-alpine](#), [5-php7.2-fpm-alpine](#), [php7.2-fpm-alpine](#)
- [5.3.0-apache](#), [5.3-apache](#), [5-apache](#), [apache](#), [5.3.0](#), [5.3](#), [5](#), [latest](#), [5.3.0-php7.3-apache](#), [5.3-php7.3-apache](#), [5-php7.3-apache](#)

gitlab 12.3.5 for Kubernetes | H X +

← → C hub.helm.sh/charts/gitlab/gitlab ⋮

## Helm Hub

gitlab

12.3.5 - gitlab  
Web-based Git-repository manager with wiki and issue-tracking features.

pipeline passed

## Cloud Native GitLab Helm Chart

The `gitlab` chart is the best way to operate GitLab on Kubernetes. It contains all the required components to get started, and can scale to large deployments.

Some of the key benefits of this chart and [corresponding containers](#) are:

- Improved scalability and reliability.
- No requirement for root privileges.
- Utilization of object storage instead of NFS for storage.

## Detailed documentation

See the [repository documentation](#) for how to install GitLab and other information on charts, tools, and advanced configuration.

## Install

Helm CLI

### Add gitlab repository

`helm repo add gitlab https://`



### Install chart

`helm install gitlab/gitlab --ve`



[Need Helm?](#)

## Architecture and goals

wordpress 5.2.3 for Kubernetes X +

← → C hub.helm.sh/charts/stable/wordpress

Helm Hub

Search charts...

Charts About

**wordpress**

5.2.3 - stable

Web publishing platform for building blogs and websites.

## WordPress

[WordPress](#) is one of the most versatile open source content management systems on the market. A publishing platform for building blogs and websites.

### TL;DR;

```
$ helm install stable/wordpress
```

### Introduction

This chart bootstraps a [WordPress](#) deployment on a [Kubernetes](#) cluster using the Helm package manager.

It also packages the [Bitnami MariaDB chart](#) which is required for bootstrapping a MariaDB deployment for the database requirements of the WordPress application.

Bitnami charts can be used with [Kubeapps](#) for deployment and management of Helm

### Install

Helm CLI

#### Install chart

```
helm install stable/wordpress
```



[Need Helm?](#)

### Chart Versions

Helm Hub Discover & launch great Kubernetes-ready apps

hub.helm.sh

Charts • About

Search charts...

872 charts ready to deploy



mogaal/adminer

4.7.3



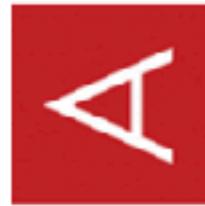
aerospike/aerospike

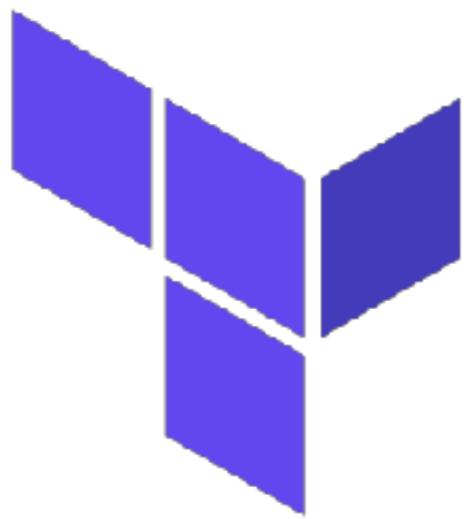
4.6.0.4



stable/aerospike

v4.5.0.5





HashiCorp  
**Terraform**

Terraform by HashiCorp

terraform.io

HashiCorp

Learn how Terraform fits into the HashiCorp Suite

Terraform

Intro Learn Docs Community Enterprise Download GitHub Sign In

CLOUD CLI

NEW Introducing Terraform Cloud →

# Terraform

Use Infrastructure as Code to provision and manage any cloud, infrastructure, or service

Sign up for Cloud

Download CLI

```
lan' to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
terraformUser$ terraform plan
Refreshing Terraform state in-memory prior to plan...
The refreshed state will be used to calculate this plan, but will
not be
persisted to local or remote state storage.

-----
```

A screenshot of a web browser window displaying the Terraform AWS Provider documentation. The browser's address bar shows the URL: `terraform.io/docs/providers/aws/index.html`. The page has a purple header with the Terraform logo and navigation links for Intro, Learn, Docs, Community, Enterprise, Download, GitHub, and Sign In. The main content area features a large heading "AWS Provider" and a sidebar with a navigation tree. The main text explains the AWS provider's purpose and usage.

# AWS Provider

The Amazon Web Services (AWS) provider is used to interact with the many resources supported by AWS. The provider needs to be configured with the proper credentials before it can be used.

Use the navigation to the left to read about the available resources.

[EXPAND ALL](#) | [FILTER](#)

[JUMP TO SECTION](#) ▾

- All Providers
- AWS Provider
- ▼ Guides
  - AWS Provider Version 2 Upgrade
  - AWS Provider Version 3 Upgrade
  - Custom Service Endpoints
  - AWS Provider Track on HashiCorp Learn
- Provider Data Sources
- ACM
- ACM PCA
- API Gateway
- Application AutoScaling

## Example Usage

```
# Configure the AWS Provider
provider "aws" {
  version = "~> 2.0"
  region  = "us-east-1"
}

# Create a VPC
resource "aws_vpc" "example" {
  cidr_block = "10.0.0.0/16"
}
```

Provider: Google Cloud Platform X +

terraform.io/docs/providers/google/index.html

HashiCorp Learn how Terraform fits into the HashiCorp Suite >

Terraform Intro Learn Docs Community Enterprise Download GitHub Sign In

# Google Cloud Platform Provider

EXPAND ALL | FILTER

JUMP TO SECTION ▾

- All Providers
- ▼ Google Provider
  - Provider Info
  - Provider Configuration Reference
  - Google Provider Versions
  - Getting Started Guide
  - 2.0.0 Upgrade Guide
  - 3.0.0 Upgrade Guide

- ▼ Google Cloud Platform Data Sources
  - google\_active\_folder
  - google\_billing\_account
  - google\_client\_config
  - google\_client\_openid\_us

Try out Terraform 0.12 with the Google provider! `google` and `google-beta` are 0.12-compatible from `2.5.0` onwards.

The Google provider is used to configure your [Google Cloud Platform](#) infrastructure. See the [Getting Started](#) page for an introduction to using the provider.

A typical provider configuration will look something like:

```
provider "google" {  
  credentials = "${file("account.json")}"  
  project     = "my-project-id"  
  region      = "us-central1"  
}
```

See the [provider reference](#) for more details on authentication or otherwise configuring the provider.

Take advantage of [Modules](#) to simplify your config by browsing the [Module Registry](#) for GCP modules.



Mitchell Hashimoto @mitchellh

v

RT [@mitchellh](#): Terraform is finally achieving its true purpose. Great work [@ndmckinley](#). But actually, I always say "Terraform represents an..."

```
provider "dominos" {  
    first_name = "My"  
    last_name = "Name"  
    email_address = "my@name.com"  
    phone_number = "15555555555"  
  
    credit_card {  
        number = 123456789101112  
        cvv = 1314  
        date = "15/16"  
        zip = 18192  
    }  
}  
  
data "dominos_address" "addr" {  
    street = "123 Main St"  
    city = "Anytown"  
    state = "WA"  
    zip = "02122"  
}  
  
data "dominos_store" "store" {  
    address_url_object = "${data.dominoes_address.addr.url_object}"  
}  
  
data "dominoes_menu_item" "item" {  
    store_id = "${data.dominoes_store.store.store_id}"  
    query_string = ["philly", "medium"]  
}  
  
resource "dominoes_order" "order" {  
    address_url_object = "${data.dominoes_address.addr.url_object}"  
}
```

**terraform-provider-dominoes**

The Terraform plugin for the Dominos Pizza provider.

[View on GitHub](#)

## Provider Purpose

The `dominoes` provider exists to ensure that while your cloud infrastructure is spinning up, you can have a hot pizza delivered to you. This paradigm-shifting expansion of Terraform's "resource" model into the physical world was inspired in part by the realization that Google has a REST API for fiber connects, e.g. for people with hard-hats laying digging up the ground, laying fiber. If you can use Terraform to summon folks with shovels to drop a fiber line, why shouldn't you be able to summon a pizza?

## Using the Provider

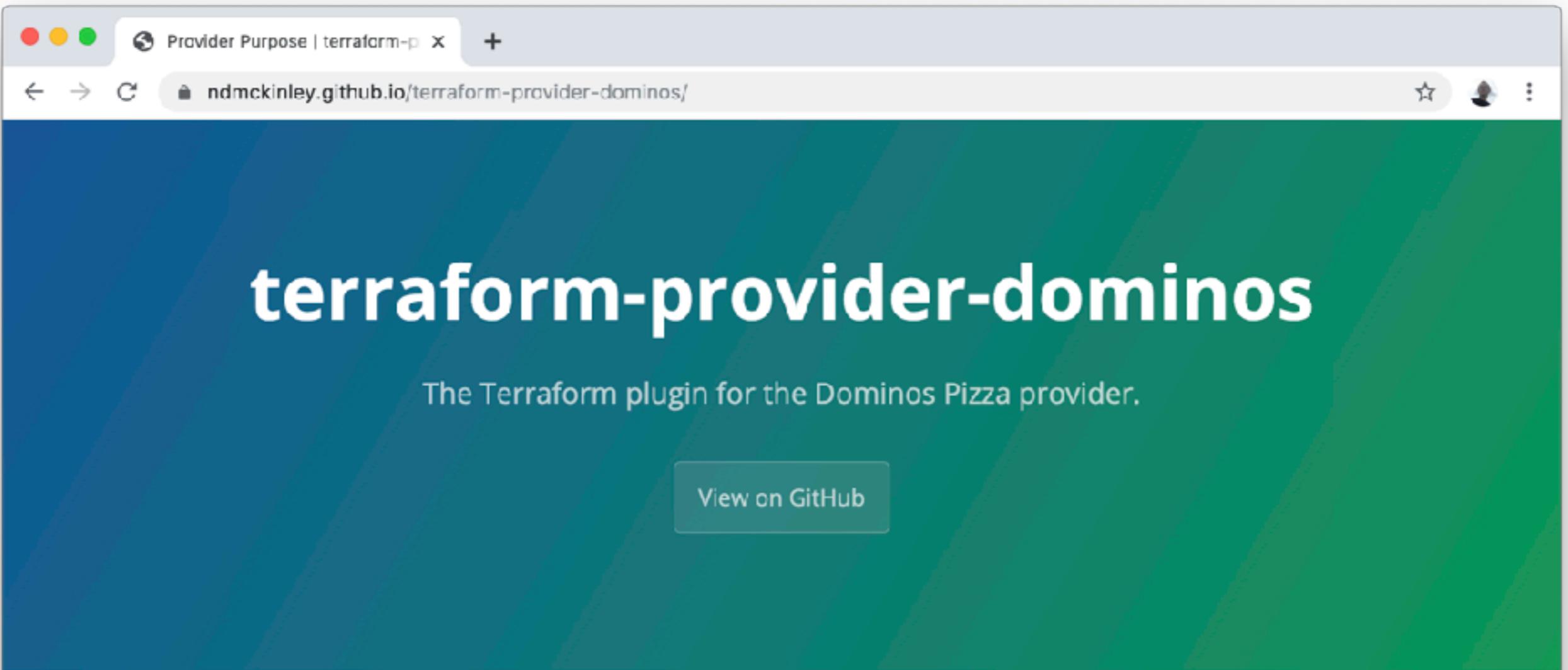
### Installing the provider

Unzip `terraform-provider-dominoes` and place it in `~/.terraform.d/plugins/terraform-providers`. Follow instructions at [Installing 3rd Party Plugins](#).

8:01 PM · Apr 1, 2019 · [TweetDeck](#)

---

206 Retweets 656 Likes



## Provider Purpose

The dominos provider exists to ensure that while your cloud infrastructure is spinning up, you can have a hot pizza delivered to you. This paradigm-shifting expansion of Terraform's "resource" model into the physical world was inspired in part by the realization that Google has a REST API for Interconnects, e.g. for people with hard-hats laying digging up the ground, laying fiber. If you can use Terraform to summon folks with shovels to drop a fiber line, why shouldn't you be able to summon a driver with a pizza?

## Using the Provider

Installing the provider

Provider Purpose | terraform-provider-dominos

Sample Configuration

```
provider "dominos" {  
    first_name      = "My"  
    last_name       = "Name"  
    email_address   = "my@name.com"  
    phone_number    = "15555555555"  
  
    credit_card {  
        number = 123456789101112  
        cvv     = 1314  
        date    = "15/16"  
        zip     = 18192  
    }  
}  
  
data "dominos_address" "addr" {  
    street = "123 Main St"  
    city   = "Anytown"  
    state  = "WA"  
    zip    = "02122"  
}  
  
data "dominos_store" "store" {  
    address_url_object = "${data.dominoes_address.addr.url_object}"  
}  
  
data "dominoes_menu_item" "item" {  
    store_id      = "${data.dominoes_store.store.store_id}"  
    query_string  = ["philly", "medium"]  
}  
  
resource "dominoes_order" "order" {  
    address_api_object = "${data.dominoes_address.addr.api_object}"  
    item_codes         = ["${data.dominoes_menu_item.item.matches.0.code}"]  
    store_id           = "${data.dominoes_store.store.store_id}"  
}
```

A screenshot of a web browser window displaying the Terraform provider documentation for Cloudflare. The page has a purple header with the Terraform logo and navigation links for Intro, Learn, Docs, Community, Enterprise, Download, GitHub, and Sign In. The main content area features a large heading 'Cloudflare Provider' and a sidebar with a navigation tree. The sidebar includes sections for All Providers, Cloudflare Provider (which is selected), Guides, Data Sources, and Resources, each with a list of available providers.

# Cloudflare Provider

The Cloudflare provider is used to interact with resources supported by Cloudflare. The provider needs to be configured with the proper credentials before it can be used.

Use the navigation to the left to read about the available resources.

## Example Usage

```
# Configure the Cloudflare provider.  
# You may optionally use version directive to prevent breaking changes occurring un  
provider "cloudflare" {  
    version = "~> 2.0"  
    email   = "${var.cloudflare_email}"  
    api_key = "${var.cloudflare_api_key}"  
}  
  
# Create a record  
resource "cloudflare_record" "www" {  
    # ...  
}  
  
# Create a page rule  
resource "cloudflare_page_rule" "index" {
```

yannh/terraform-provider-statuspage

github.com/yannh/terraform-provider-statuspage

Search or jump to... Pull requests Issues Marketplace Explore

yannh / terraform-provider-statuspage Watch 2 Star 11 Fork 4

Code Issues 1 Pull requests 2 Actions Security Insights

A Terraform provider for Statuspage.io

57 commits 1 branch 0 packages 0 releases 2 contributors MPL-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

T yannh Disabling statuspage metric tests, my Datadog test account expired ✓ Latest commit 4f4dcfb on Sep 11

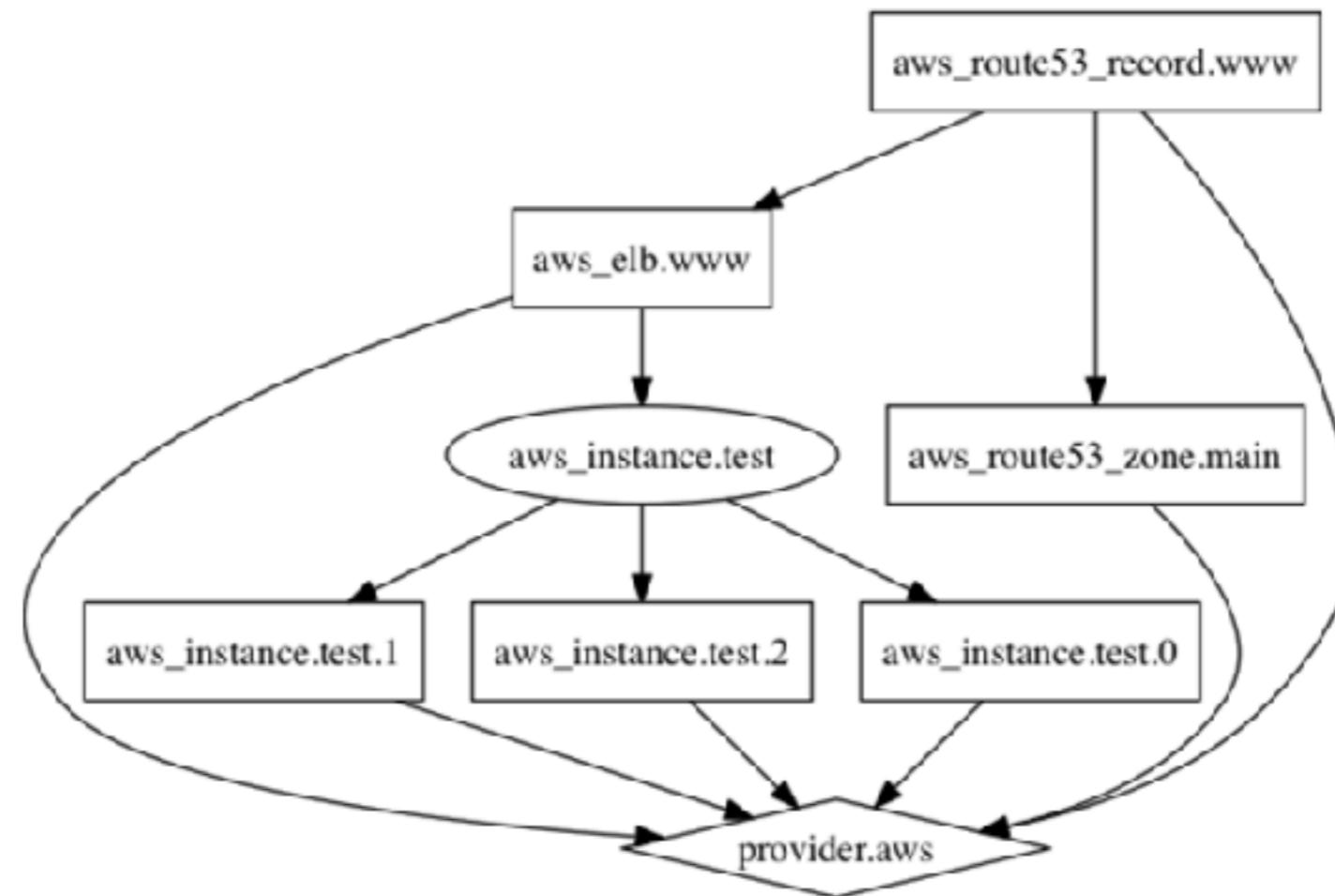
statuspage	Disabling statuspage metric tests, my Datadog test account expired	3 months ago
vendor	update sdk, fix broken add metric	5 months ago
.gitignore	Add .envrc to gitignore	6 months ago
.gitlab-ci.yml	vendoring, no need for go get in CI	8 months ago
LICENSE	Add LICENSE	8 months ago
Makefile	Export component automation_email attribute	6 months ago
README.md	Update instructions in readme	3 months ago
go.mod	update sdk, fix broken add metric	5 months ago
go.sum	update sdk, fix broken add metric	5 months ago
main.go	First provider version	8 months ago
README.md		



```
$ terraform graph | dot -Tsvg > graph.svg
```

- › State
- › Providers
- › Provisioners
- › Modules
- › Backends
- › Plugins
- › Internals

Here is an example graph output:



## Other Docs

- Terraform Cloud
- Terraform Enterprise
- Provider References
- Terraform Glossary
- Introduction to Terraform
- Guides and Whitepapers
- Terraform Registry
- Terraform GitHub Actions
- Extending Terraform

A screenshot of a web browser window displaying the Terraform documentation for the Kubernetes provider. The page has a purple header with the Terraform logo and navigation links for Intro, Learn, Docs, Community, Enterprise, Download, GitHub, and Sign In. The main content area features a large heading 'Kubernetes Provider' and a sidebar with a navigation tree. The sidebar includes sections for All Providers, Kubernetes Provider (which is expanded), Data Sources (with entries for kubernetes\_secret, kubernetes\_service, kubernetes\_storage\_class, and secrets), and Resources (with entries for kubernetes\_api\_service, kubernetes\_cluster\_role, kubernetes\_cluster\_role\_binding, kubernetes\_config\_map, and kubernetes\_cron\_job). The main content area also contains a paragraph about the Kubernetes provider and a note to use the navigation on the left.

# Kubernetes Provider

[EXPAND ALL](#) | [FILTER](#)

[JUMP TO SECTION ▾](#)

- [All Providers](#)
- ▼ [Kubernetes Provider](#)
  - [Getting Started](#)
- ▼ [Data Sources](#)
  - [kubernetes\\_secret](#)
  - [kubernetes\\_service](#)
  - [kubernetes\\_storage\\_class](#)
  - [secrets](#)
- ▼ [Resources](#)
  - [kubernetes\\_api\\_service](#)
  - [kubernetes\\_cluster\\_role](#)
  - [kubernetes\\_cluster\\_role\\_binding](#)
  - [kubernetes\\_config\\_map](#)
  - [kubernetes\\_cron\\_job](#)

The Kubernetes (K8S) provider is used to interact with the resources supported by Kubernetes. The provider needs to be configured with the proper credentials before it can be used.

Use the navigation to the left to read about the available resources.

## Example Usage

```
provider "kubernetes" {  
    config_context_auth_info = "ops"  
    config_context_cluster   = "mycluster"  
}  
  
resource "kubernetes_namespace" "example" {  
    metadata {  
        name = "my-first-namespace"  
    }  
}
```

A screenshot of a web browser window displaying the Terraform documentation for the Kubernetes provider. The page has a purple header with the Terraform logo and navigation links for Intro, Learn, Docs, Community, Enterprise, Download, GitHub, and Sign In. The main content area features a large heading "kubernetes\_deployment" and a sidebar with a navigation tree for providers, data sources, and resources.

Kubernetes: kubernetes\_deployment

HashiCorp

Learn how Terraform fits into the HashiCorp Suite

Terraform

Intro Learn Docs Community Enterprise Download GitHub Sign In

# kubernetes\_deployment

EXPAND ALL | FILTER

JUMP TO SECTION ▾

- All Providers
- ▼ Kubernetes Provider
  - Getting Started
- ▼ Data Sources
  - kubernetes\_secret
  - kubernetes\_service
  - kubernetes\_storage\_class
- ▼ Resources
  - kubernetes\_api\_service
  - kubernetes\_cluster\_role
  - kubernetes\_cluster\_role\_binding
  - kubernetes\_config\_map
  - kubernetes\_cron\_job

## kubernetes\_deployment

JUMP TO SECTION ▾

A Deployment ensures that a specified number of pod "replicas" are running at any one time. In other words, a Deployment makes sure that a pod or homogeneous set of pods are always up and available. If there are too many pods, it will kill some. If there are too few, the Deployment will start more.

## Example Usage

```
resource "kubernetes_deployment" "example" {
  metadata {
    name = "terraform-example"
    labels = {
      test = "MyExampleApp"
    }
  }

  spec {
    replicas = 3

    selector {
      match_labels = {
        app = "myapp"
      }
    }
  }
}
```



- kubernetes\_service
- kubernetes\_storage\_class
- Resources
  - kubernetes\_api\_service
  - kubernetes\_cluster\_role
  - kubernetes\_cluster\_role\_binding
  - kubernetes\_config\_map
  - kubernetes\_cron\_job
  - kubernetes\_daemonset
  - **kubernetes\_deployment**
  - kubernetes\_endpoints
  - kubernetes\_horizontal\_pod\_autoscaler
  - kubernetes\_ingress
  - kubernetes\_job
  - kubernetes\_limit\_range
  - kubernetes\_namespace
  - kubernetes\_network\_policy
  - kubernetes\_persistent\_volume

## Example Usage

```
resource "kubernetes_deployment" "example" {  
    metadata {  
        name = "terraform-example"  
        labels = {  
            test = "MyExampleApp"  
        }  
    }  
  
    spec {  
        replicas = 3  
  
        selector {  
            match_labels = {  
                test = "MyExampleApp"  
            }  
        }  
  
        template {  
            metadata {  
                labels = {  
                    test = "MyExampleApp"  
                }  
            }  
  
            spec {  
                container {  
                    image = "nginx:1.7.8"  
                    name = "example"  
  
                    resources {  
                        limits {  
                            cpu = "0.5"  
                        }  
                    }  
                }  
            }  
        }  
    }  
}
```



- kubernetes\_service
- kubernetes\_storage\_class
- kubernetes\_node\_selector
- Resources
  - kubernetes\_api\_service
  - kubernetes\_cluster\_role
  - kubernetes\_cluster\_role\_binding
  - kubernetes\_config\_map
  - kubernetes\_cron\_job
  - kubernetes\_daemonset
  - **kubernetes\_deployment**
  - kubernetes\_endpoints
  - kubernetes\_horizontal\_pod\_autoscaler
  - kubernetes\_ingress
  - kubernetes\_job
  - kubernetes\_limit\_range
  - kubernetes\_namespace
  - kubernetes\_network\_policy
  - kubernetes\_persistent\_volume

## Example Usage

```
resource "kubernetes_deployment" "example" {  
    metadata {  
        name = "terraform-example"  
        labels = {  
            test = "MyExampleApp"  
        }  
    }  
  
    spec {  
        replicas = 3  
  
        selector {  
            match_labels = {  
                test = "MyExampleApp"  
            }  
        }  
    }  
  
    template {  
        metadata {  
            labels = {  
                test = "MyExampleApp"  
            }  
        }  
    }  
  
    spec {  
        container {  
            image = "nginx:1.7.8"  
            name = "example"  
        }  
  
        resources {  
            limits {  
                cpu = "0.5"  
            }  
        }  
    }  
}
```

A screenshot of a web browser window displaying the Terraform documentation for the `helm_release` provider. The browser has a tab bar with one tab open, showing the URL `terraform.io/docs/providers/helm/release.html`. The main content area features the HashiCorp logo and the Terraform logo. The navigation bar includes links for Intro, Learn, Docs, Community, Enterprise, Download, GitHub, and Sign In. A sidebar on the left shows a navigation tree with All Providers, Helm Provider (selected), helm\_release, and helm\_repository.

## Resource: `helm_release`

JUMP TO SECTION ▾

A Release is an instance of a chart running in a Kubernetes cluster. A Chart is a Helm package. It contains all of the resource definitions necessary to run an application, tool, or service inside of a Kubernetes cluster.

`helm_release` describes the desired status of a chart in a kubernetes cluster.

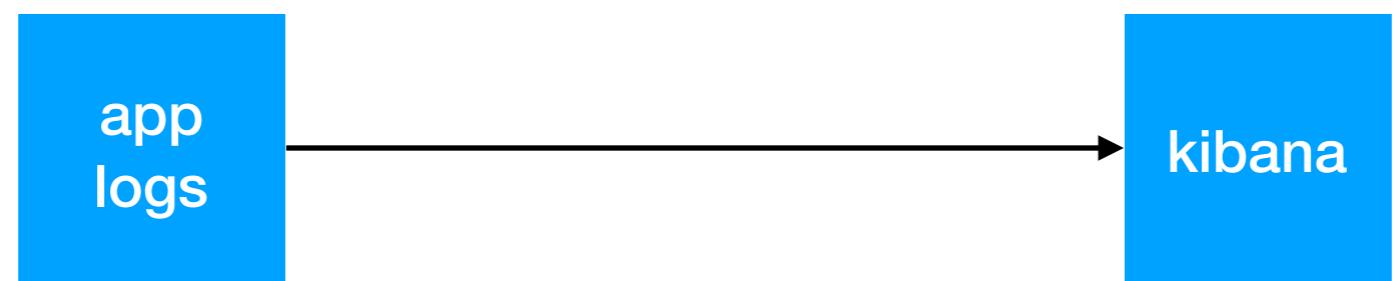
## Example Usage

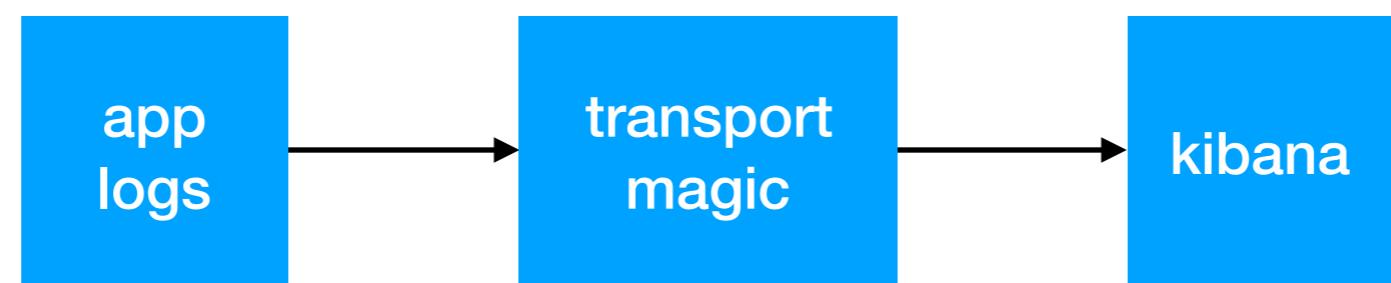
```
data "helm_repository" "stable" {
  name = "stable"
  url  = "https://kubernetes-charts.storage.googleapis.com"
}

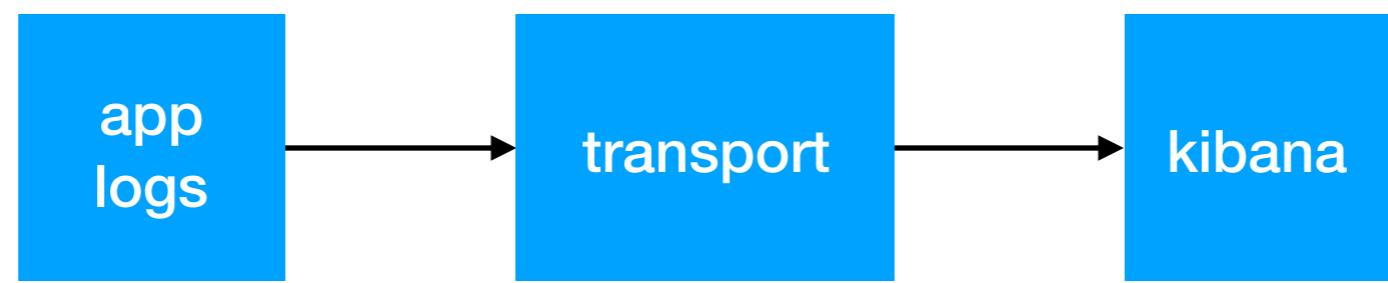
resource "helm_release" "example" {
  name        = "my-redis-release"
  repository = data.helm_repository.stable.metadata[0].name
  chart      = "redis"
  version    = "6.0.1"

  values = [
    # ...
  ]
}
```

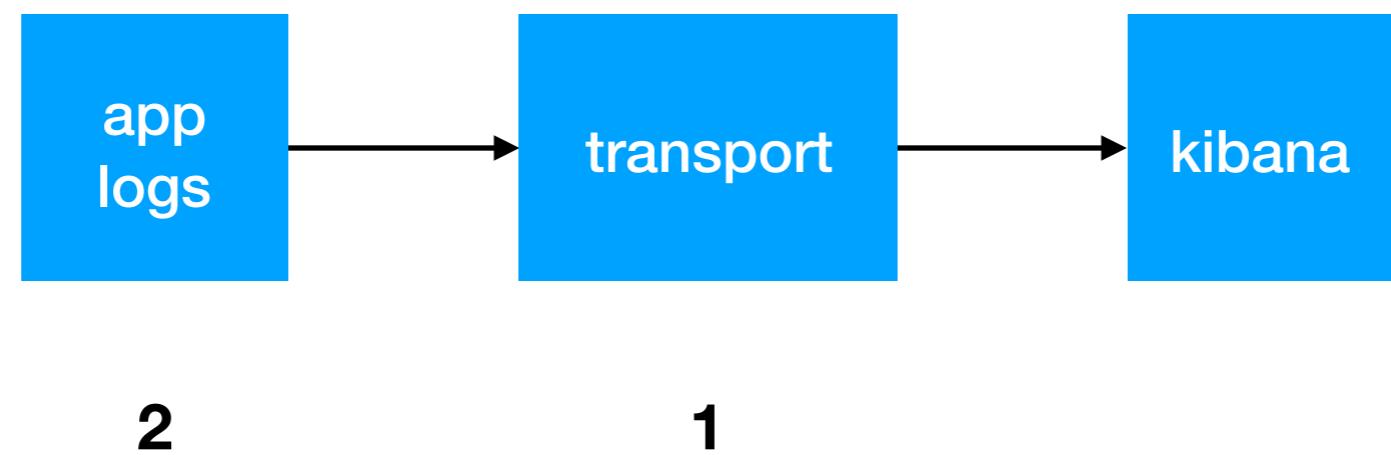
# **7. Logs**

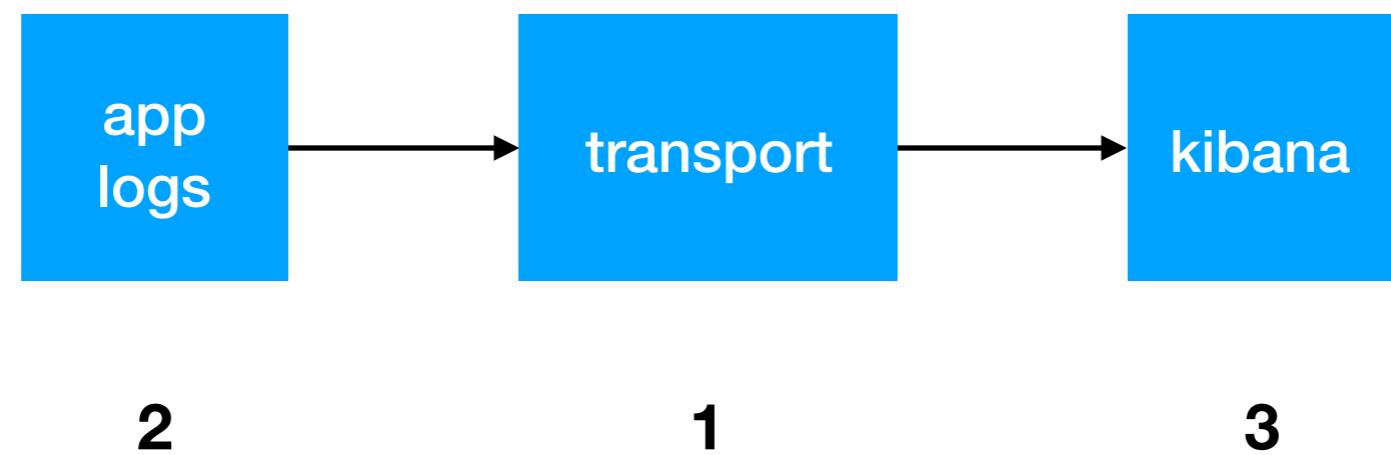






1





Fluentd | Open Source Data Collector

fluentd.org

FAQs | Slack | Star 8,599

OVERVIEW PLUG-INS RESOURCES COMMUNITY DOWNLOAD

Build Your Unified Logging Layer

Syslog  
Apache/Nginx logs  
Mobile/Web app logs  
Sensors/IoT

Elasticsearch  
MongoDB  
Hadoop  
AWS, GCP, etc.

Fluentd is an open source data collector for unified logging layer.

WHAT IS FLUENTD?

Fluentd allows you to unify data collection and consumption for a better use and understanding of data.

**Demo / практика**

```
eugene@eugene-mbp ~% docker info
```

```
Client:
  Debug Mode: false

Server:
  Containers: 242
    Running: 3
    Paused: 0
    Stopped: 239
  Images: 901
  Server Version: 19.03.1
  Storage Driver: overlay2
    Backing Filesystem: extfs
    Supports d_type: true
    Native Overlay Diff: true
  Logging Driver: json-file
  Cgroup Driver: cgroupfs
  Plugins:
    Volume: local
    Network: bridge host ipvlan macvlan null overlay
    Log: awslogs fluentd gcplogs gelf journald json-file local logentries splunk syslog
  Swarm: inactive
  Runtimes: runc
  Default Runtime: runc
  Init Binary: docker-init
  containerd version: 894b81a4b802e4eb2a91d1ce216b8817763c29fb
  runc version: 425e105d5a03fabd737a126ad93d62a9eeede87f
  init version: fec3683
  Security Options:
    seccomp
      Profile: default
  Kernel Version: 4.9.184-linuxkit
  Operating System: Docker Desktop
  OSType: linux
  Architecture: x86_64
  CPUs: 6
  Total Memory: 1.952GiB
  Name: docker-desktop
  ID: TBZW:SWQN:T7ES:KNZZ:XBSX:5JAP:KNCA:76E6:DJBR:RKWS:R2AY:SPZX
  Docker Root Dir: /var/lib/docker
  Debug Mode: true
    File Descriptors: 53
    Goroutines: 69
    System Time: 2019-12-06T18:52:59.4499618Z
    EventsListeners: 2
  HTTP Proxy: gateway.docker.internal:3128
  HTTPS Proxy: gateway.docker.internal:3129
  Registry: https://index.docker.io/v1/
  Labels:
  Experimental: false
  Insecure Registries: ■
```

eugene@eugene-mbp ~% docker info

Client:

Debug Mode: false

Server:

Containers: 242

Running: 3

Paused: 0

Stopped: 239

Images: 901

Server Version: 19.03.1

Storage Driver: overlay2

  Backing Filesystem: extfs

  Supports d\_type: true

  Native Overlay Diff: true

Logging Driver: json-file

Cgroup Driver: cgroups

Plugins:

  Volume: local

  Network: bridge host ipvlan macvlan null overlay

  Log: awslogs fluentd gcplogs gelf journald json-file local logentries splunk syslog

Swarm: inactive

Runtimes: runc

Default Runtime: runc

Init Binary: docker-init

containerd version: 894b81a4b802e4eb2a91d1ce216b8817763c29fb

runc version: 425e105d5a03fabd737a126ad93d62a9eeade87f

init version: fec3683

Security Options:

  seccomp

    Profile: default

Kernel Version: 4.9.184-linuxkit

Operating System: Docker Desktop

OSType: linux

Architecture: x86\_64

CPUs: 6

Total Memory: 1.952GiB

Name: docker-desktop

ID: TBZW:SWQH:T7ES:KNZZ:XBSX:5JAP:KNCA:76E6:DJBR:RKWS:R2AY:SPZX

Docker Root Dir: /var/lib/docker

Debug Mode: true

  File Descriptors: 53

  Goroutines: 69

  System Time: 2019-12-06T18:52:59.4499618Z

  EventsListeners: 2

  HTTP Proxy: gateway.docker.internal:3128

  HTTPS Proxy: gateway.docker.internal:3129

  Registry: https://index.docker.io/v1/

Labels:

  Experimental: false

  Insecure Registries: []

```
eugene@eugene-mbp ~/p/workshop> docker info
Client:
  Debug Mode: false

Server:
  Containers: 242
    Running: 3
    Paused: 0
    Stopped: 239
  Images: 901
  Server Version: 19.03.1
  Storage Driver: overlay2
    Backing Filesystem: extfs
    Supports d_type: true
    Native Overlay Diff: true
  Logging Driver: json-file
  Cgroup Driver: cgroups
  Plugins:
    Volume: local
    Network: bridge host ipvlan macvlan null overlay
    Log: awslogs fluentd gcplogs gelf journald json-file local logentries splunk syslog
  Swarm: inactive
  Runtimes: runc
  Default Runtime: runc
  Init Binary: docker-init
  containerd version: 894b81a4b802e4eb2a91d1ce216b8817763c29fb
  runc version: 425e105d5a03fabd737a126ad93d62a9eeade87f
  init version: fec3683
  Security Options:
    seccomp
      Profile: default
  Kernel Version: 4.9.184-linuxkit
  Operating System: Docker Desktop
  OSType: linux
  Architecture: x86_64
  CPUs: 6
  Total Memory: 1.952GiB
  Name: docker-desktop
  ID: TBZW:SWQH:T7ES:KNZZ:XBSX:5JAP:KNCA:76E6:DJBR:RKWS:R2AY:SPZX
  Docker Root Dir: /var/lib/docker
  Debug Mode: true
  File Descriptors: 53
  Goroutines: 69
  System Time: 2019-12-06T18:52:59.4499618Z
  EventsListeners: 2
  HTTP Proxy: gateway.docker.internal:3128
  HTTPS Proxy: gateway.docker.internal:3129
  Registry: https://index.docker.io/v1/
  Labels:
  Experimental: false
  Insecure Registries: []
```

Defining log-driver and log-opt X +

github.com/kubernetes/kubernetes/issues/15478

Apps Bookmarks Bash Причины Contractbook Auth Med JIRA Passwords Other Bookmarks

Search or jump to... Pull requests Issues Marketplace Explore

kubernetes / kubernetes

Unwatch releases

3.1k

Unstar

60.9k

Fork

21.5k

Code

Issues 2,243

Pull requests 1,081

Actions

Projects 9

Security

Insights

# Defining log-driver and log-opt when specifying pod in RC and Pod #15478

New issue

Closed

ejemba opened this issue on Oct 12, 2015 · 88 comments



ejemba commented on Oct 12, 2015

...

We need to be able to define the following options when specifying the pod definition in RC and Pod

--log-driver= Logging driver for container

--log-opt=[] Log driver options

These options should be settable at container level and have been introduced with Docker 1.8.

Since docker client lib support both options as well adding those options to the pod definition is now doable.

106

5

## Assignees

No one assigned

## Labels

area/api

area/logging

kind/feature

lifecycle/rotten

sig/instrumentation

sig/scalability

## Projects

None yet

## Milestone

No milestone



timothysc commented on Oct 13, 2015

Member

...

/cc @kubernetes/rh-cluster-infra

Defining log-driver and log-opt X +

github.com/kubernetes/kubernetes/issues/15478

Apps Bookmarks Bash Причины Contractbook Auth Med JIRA Passwords Other Bookmarks

**Closed** Defining log-driver and log-opt when specifying pod in RC and Pod #15478  
ejemba opened this issue on Oct 12, 2015 · 88 comments

- v1.7.1-debian-loggly-1.0, v1.7-debian-loggly-1 docker-image/v1.7/debian-loggly/Dockerfile
- v1.7.1-debian-logentries-1.0, v1.7-debian-logentries-1 docker-image/v1.7/debian-logentries/Dockerfile
- v1.7.1-debian-cloudwatch-1.0, v1.7-debian-cloudwatch-1 docker-image/v1.7/debian-cloudwatch/Dockerfile
- v1.7.1-debian-stackdriver-1.0, v1.7-debian-stackdriver-1 docker-image/v1.7/debian-stackdriver/Dockerfile
- v1.7.1-debian-s3-1.0, v1.7-debian-s3-1 docker-image/v1.7/debian-s3/Dockerfile
- v1.7.1-debian-syslog-1.0, v1.7-debian-syslog-1 docker-image/v1.7/debian-syslog/Dockerfile
- v1.7.1-debian-forward-1.0, v1.7-debian-forward-1 docker-image/v1.7/debian-forward/Dockerfile
- v1.7.1-debian-gcs-1.0, v1.7-debian-gcs-1 docker-image/v1.7/debian-gcs/Dockerfile
- v1.7.1-debian-graylog-1.0, v1.7-debian-graylog-1 docker-image/v1.7/debian-graylog/Dockerfile
- v1.7.1-debian-papertrail-1.0, v1.7-debian-papertrail-1 docker-image/v1.7/debian-papertrail/Dockerfile
- v1.7.1-debian-logzio-1.0, v1.7-debian-logzio-1 docker-image/v1.7/debian-logzio/Dockerfile
- v1.7.1-debian-kafka-1.0, v1.7-debian-kafka-1 docker-image/v1.7/debian-kafka/Dockerfile
- v1.7.1-debian-kinesis-1.0, v1.7-debian-kinesis-1 docker-image/v1.7/debian-kinesis/Dockerfile

If you are using DataDog they have their own agent to install instead or as well as fluentd :

<https://docs.datadoghq.com/integrations/kubernetes/>

In general docker tended to kitchen sink, with logging and log plug-ins, and swarm, and runtime tools, build tools, networking, and file system mounting, etc. all in one daemon process. Kubernetes generally prefers loosely coupled containers/processes doing one task each and communicating via APIs. So it is a bit of a different style to get used to.

1

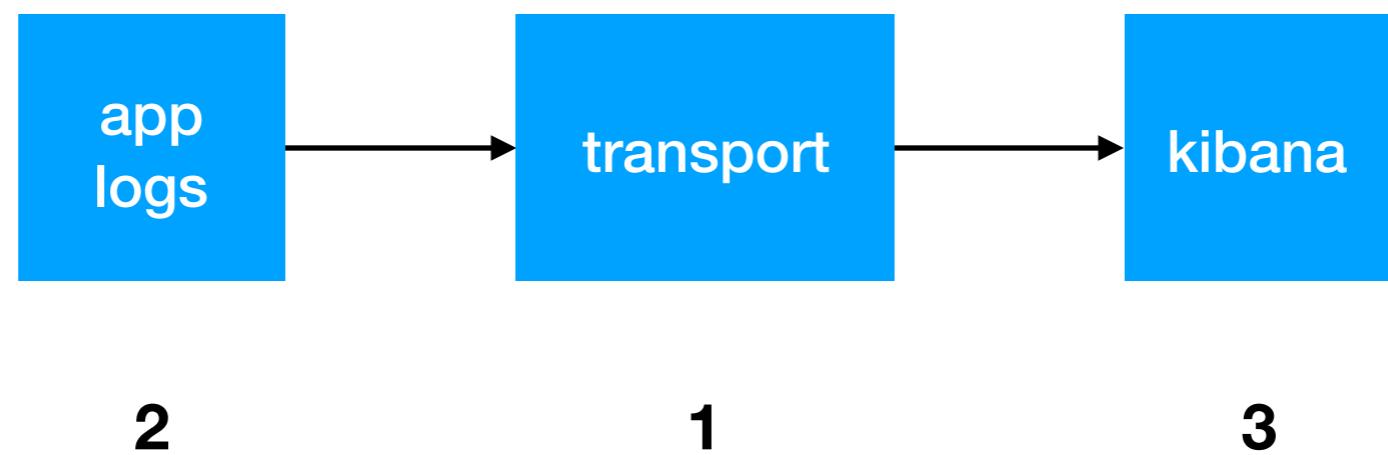
ashleydavis commented on Sep 24

Thanks for the detailed response. I'm definitely going to look into this.

With dockerd deprecated does that mean I can't deploy Docker images to Kubernetes in the future?

In general docker tended to kitchen sink , with logging and log plug-ins, and swarm, and runtime tools, build tools, networking, and file system mounting, etc. all in one daemon process. Kubernetes generally prefers loosely coupled containers/processes doing one task each and communicating via APIs. So it is a bit of a different style to get used to.

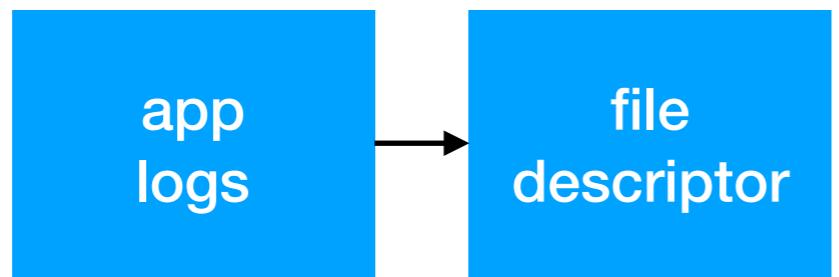
In general `docker` tended to `kitchen sink`, with logging and log plug-ins, and swarm, and runtime tools, build tools, networking, and file system mounting, etc. all in one daemon process. Kubernetes generally prefers loosely coupled containers/processes doing one task each and communicating via APIs. So it is a bit of a different style to get used to.

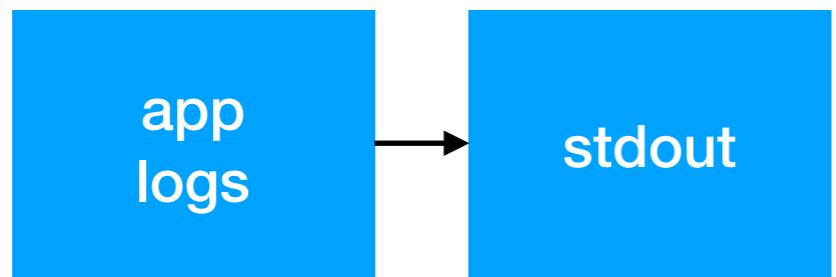


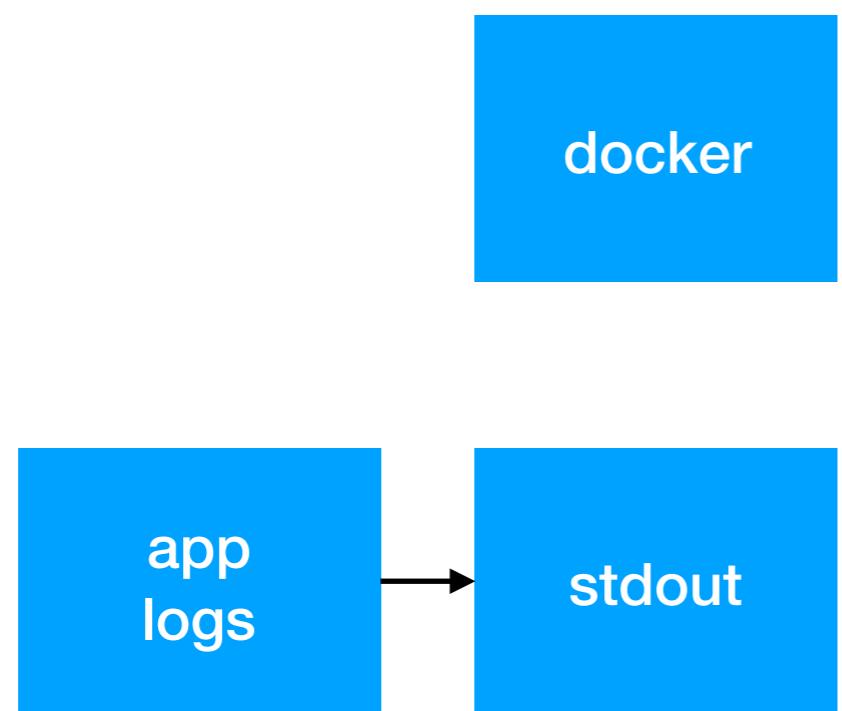
app  
logs

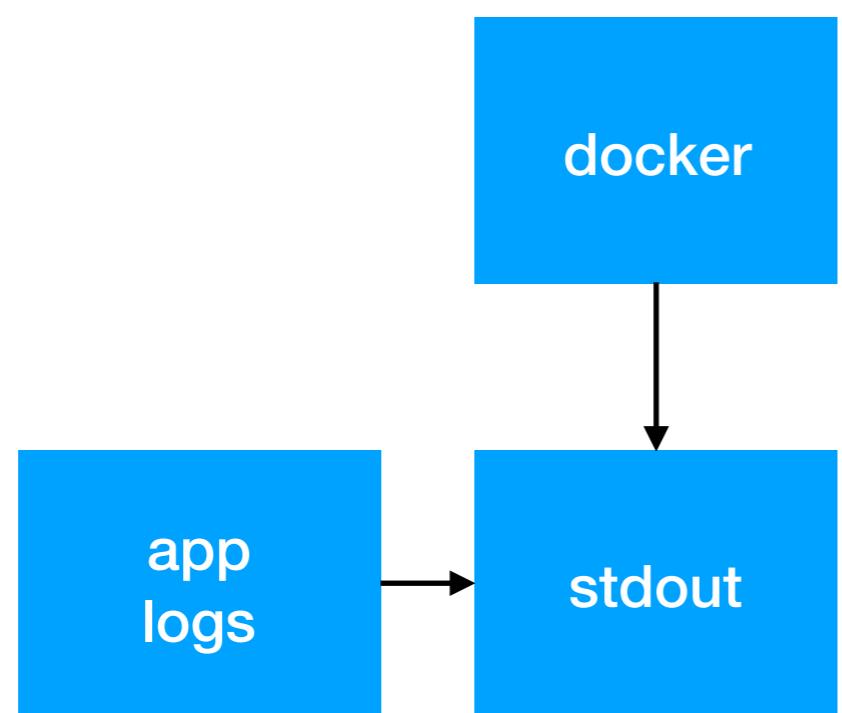
app  
logs

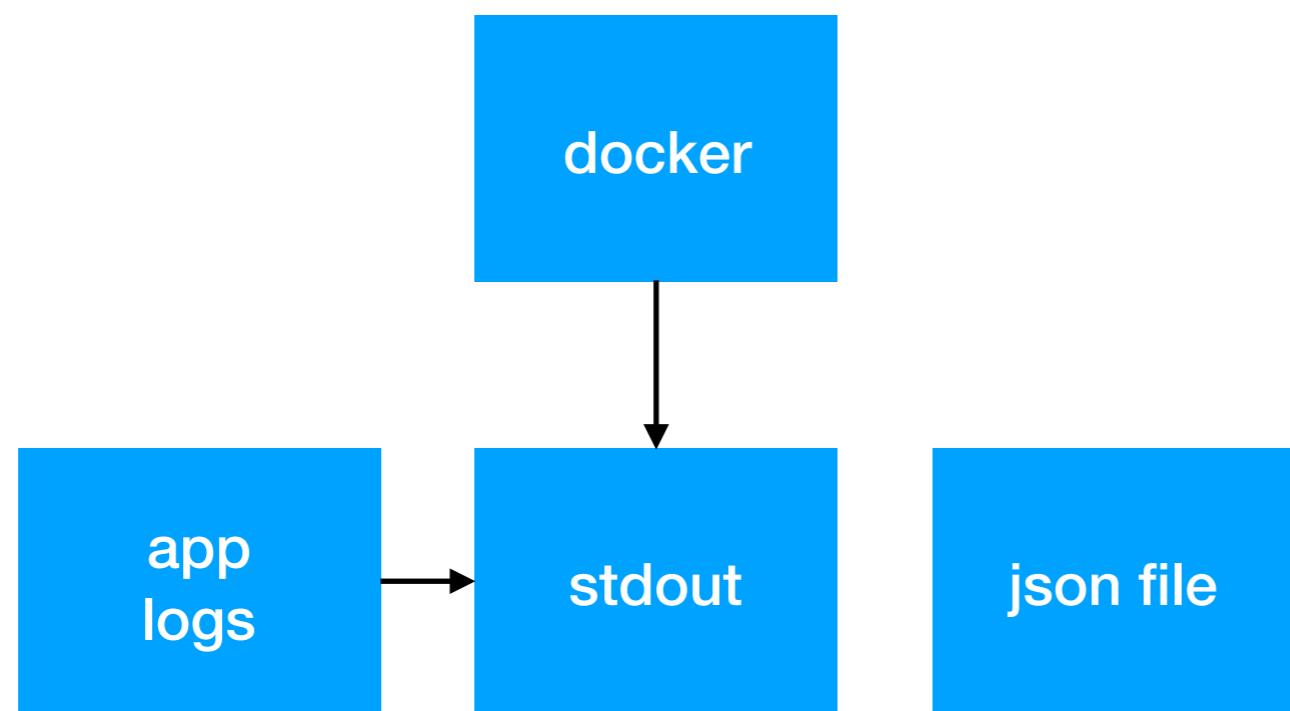
file  
descriptor

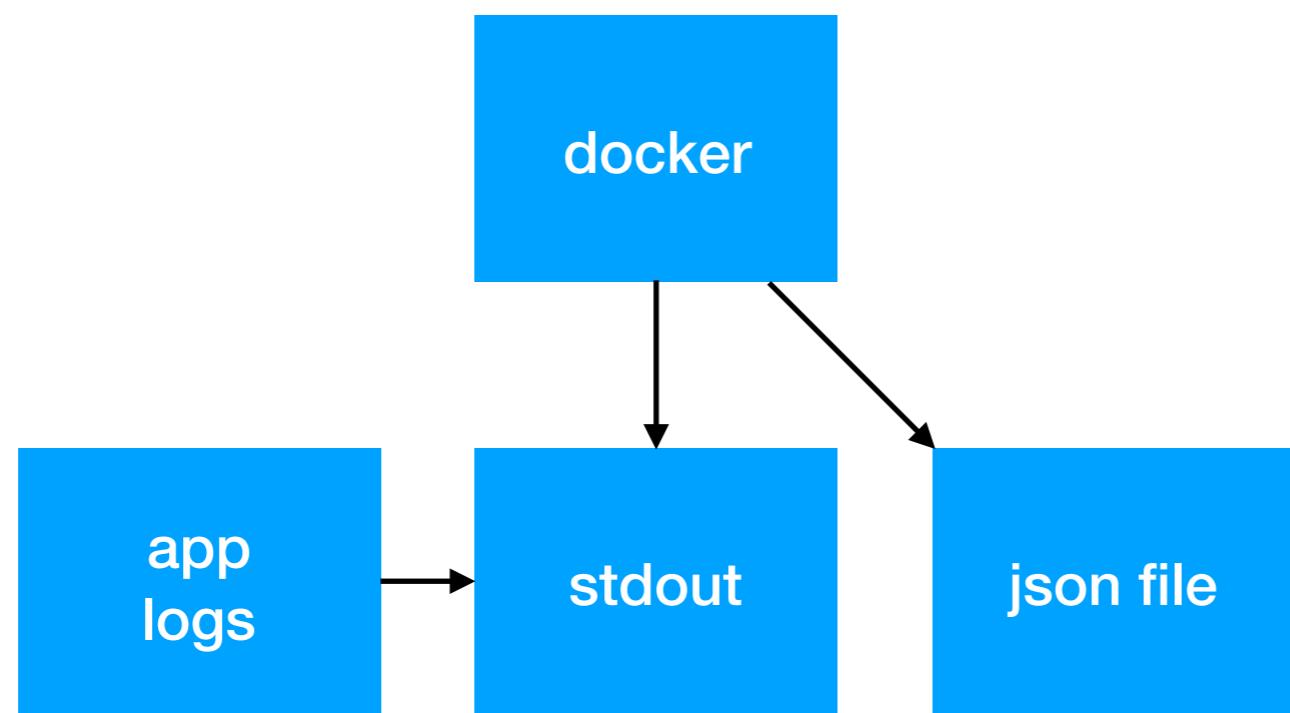


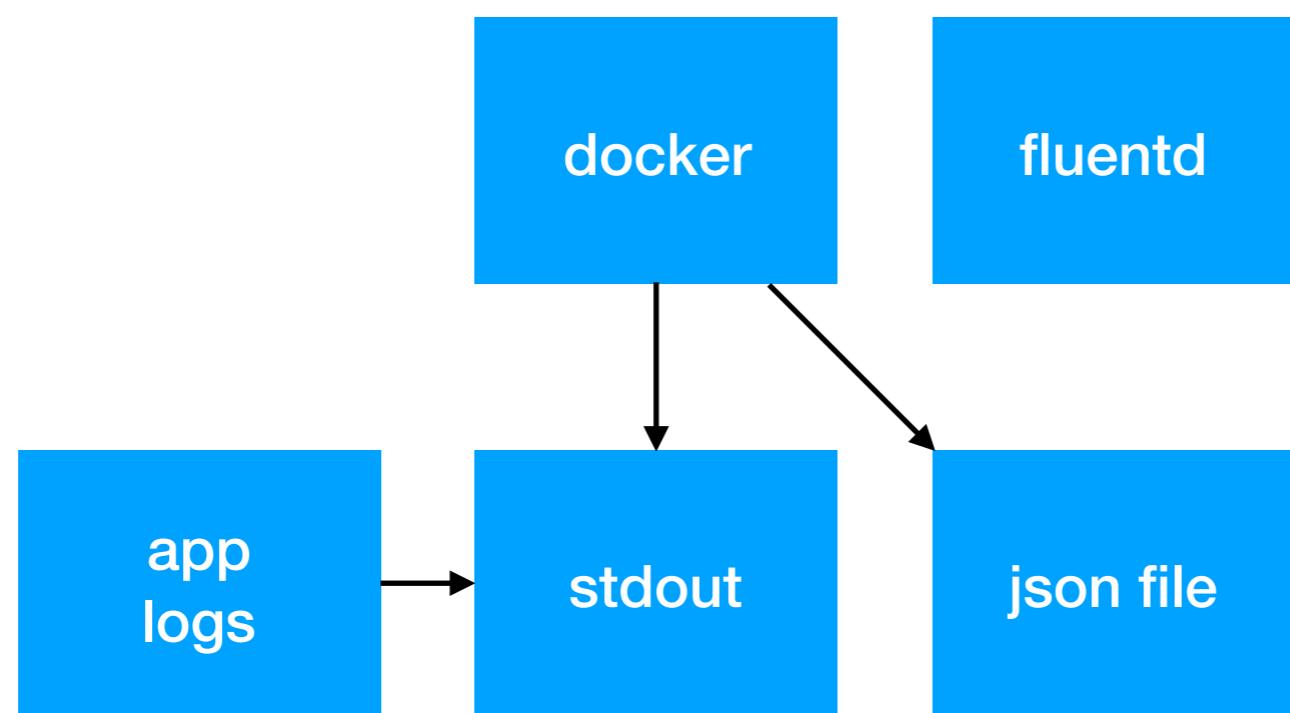


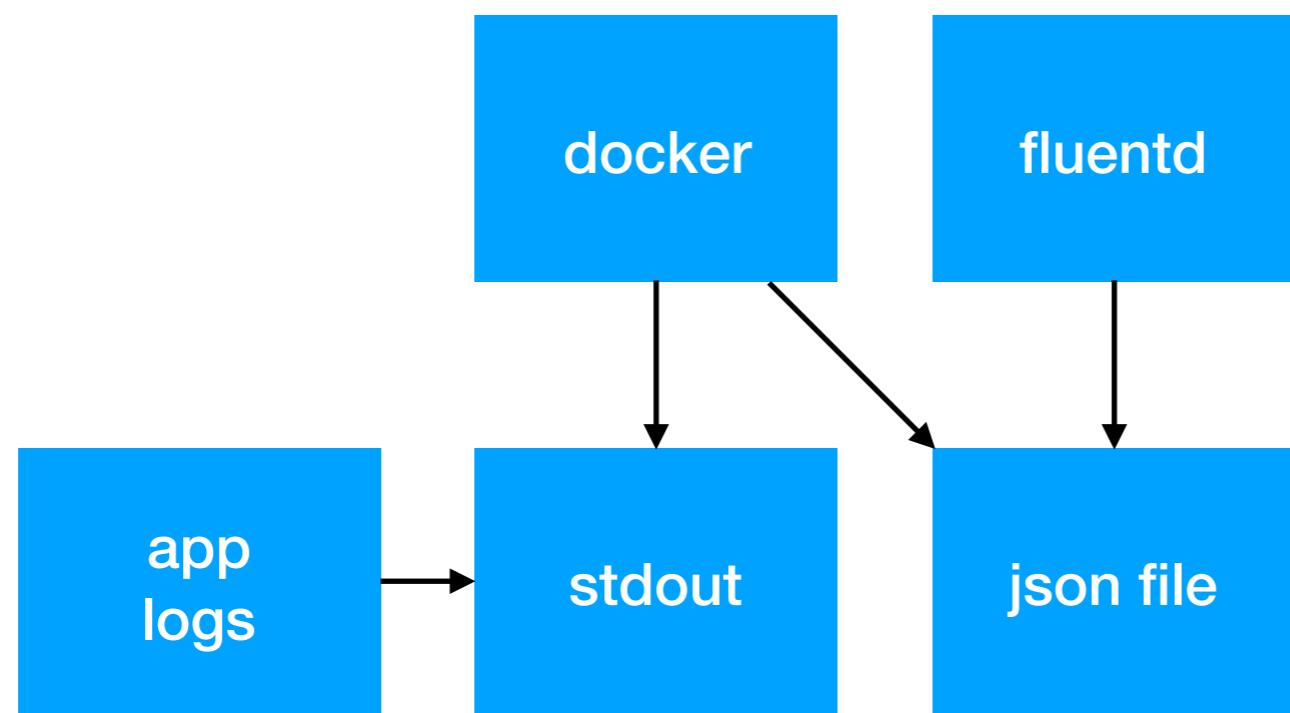


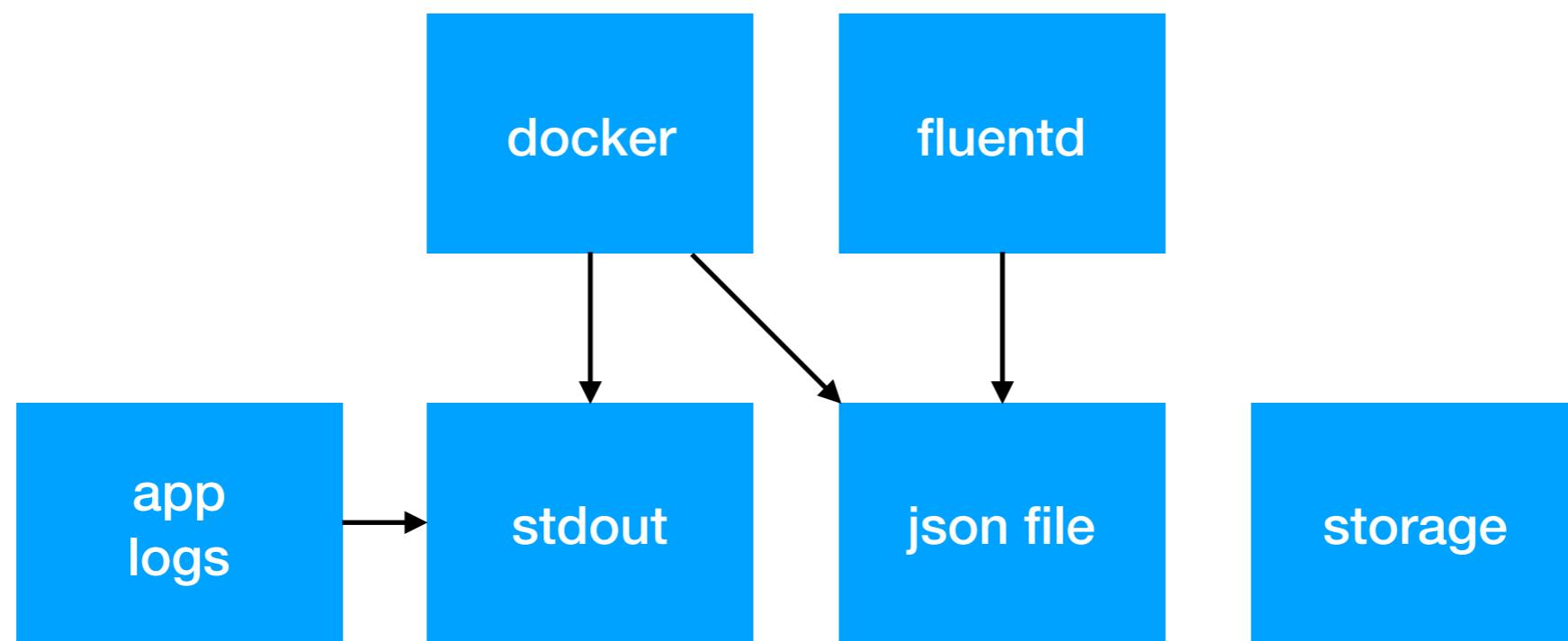


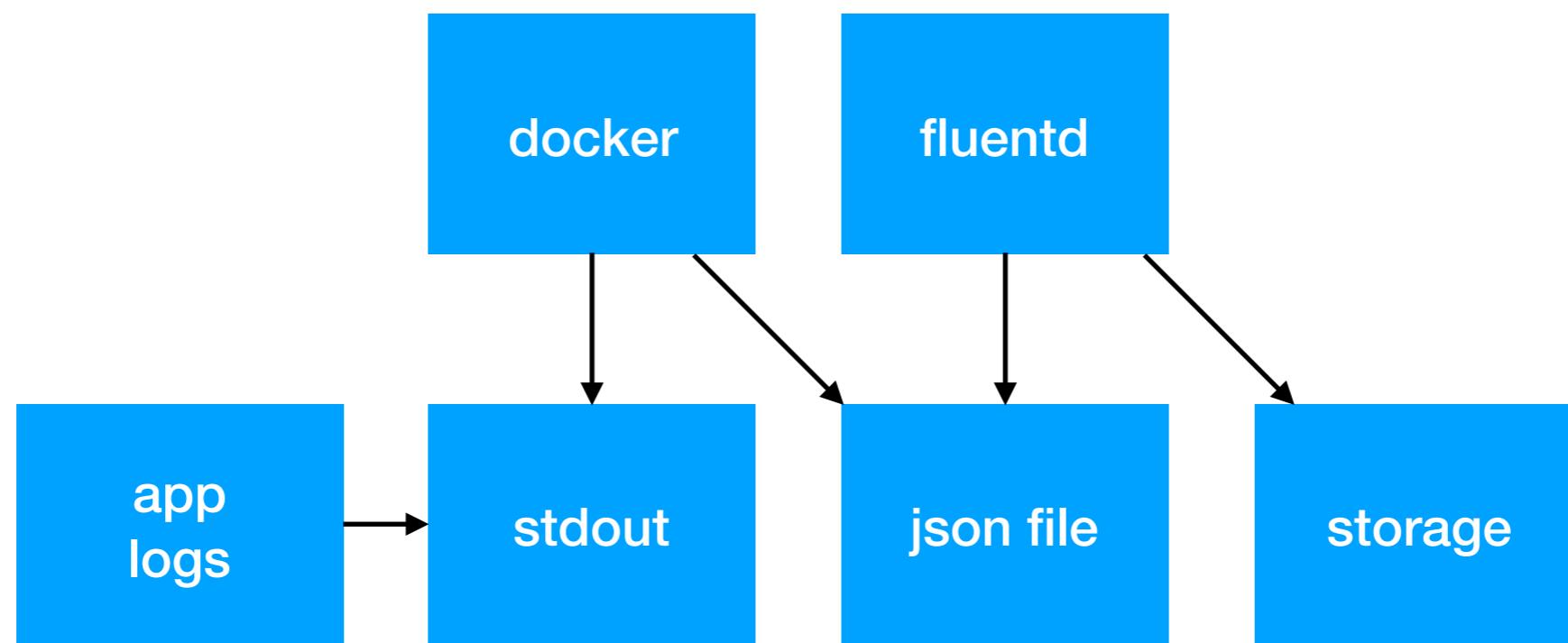


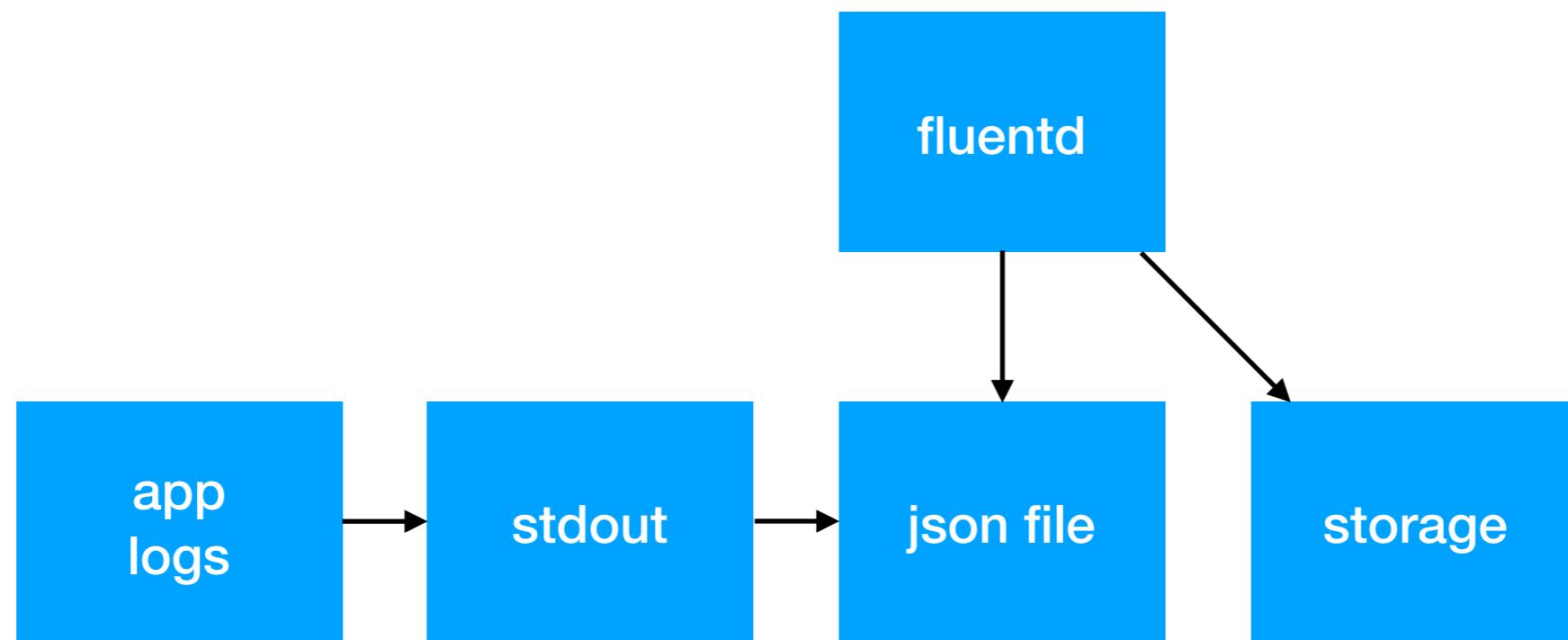


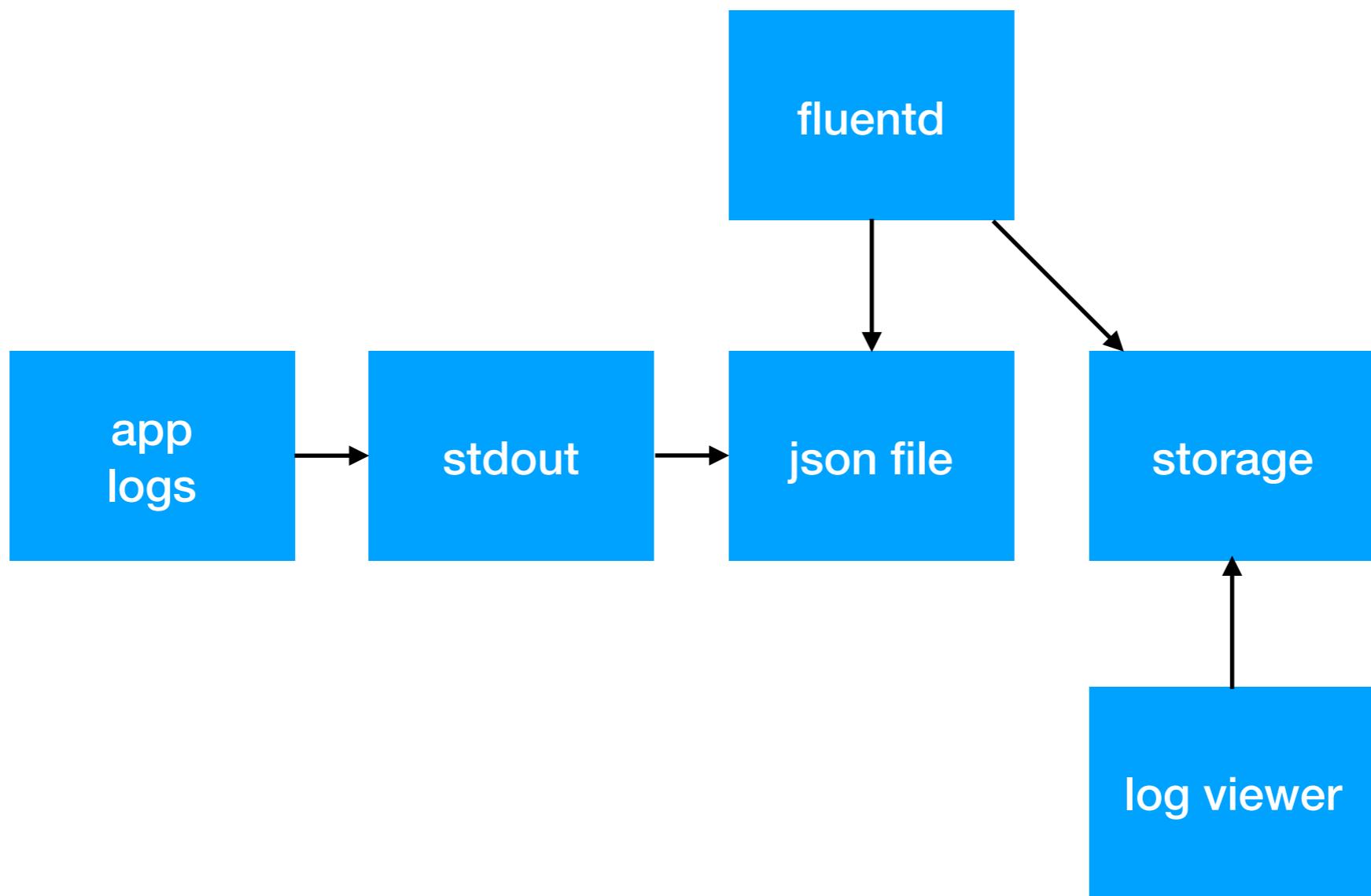


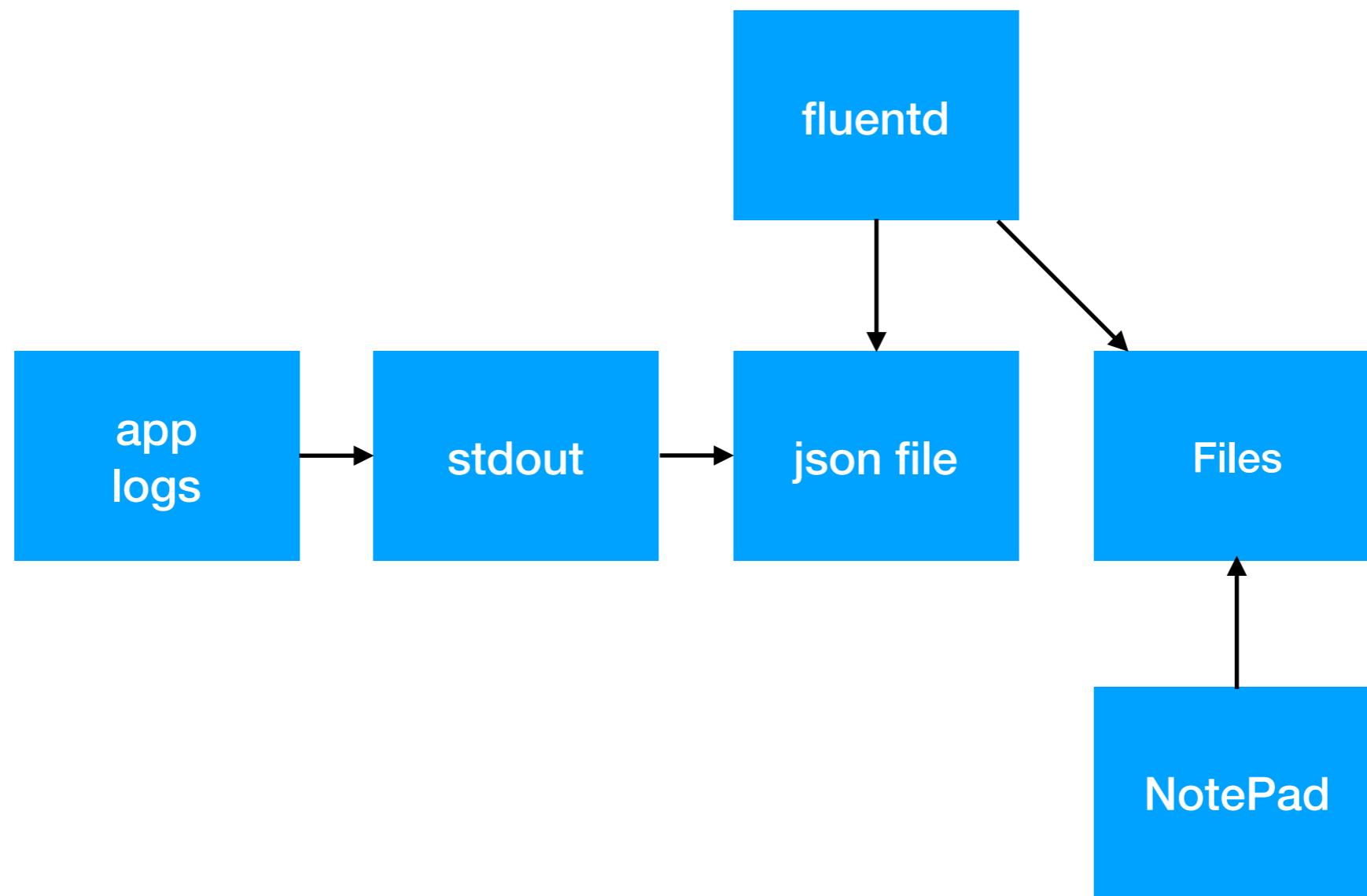


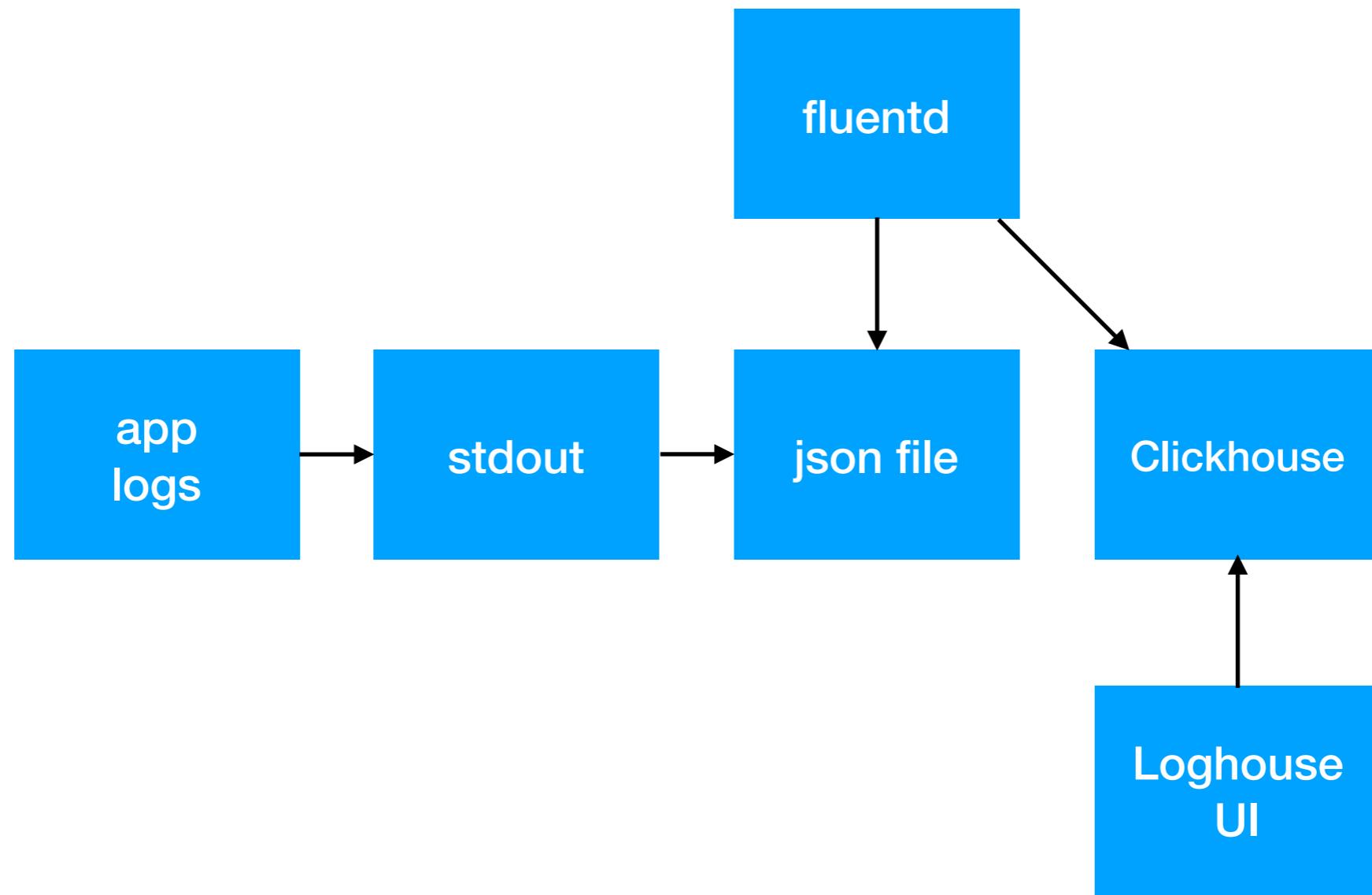


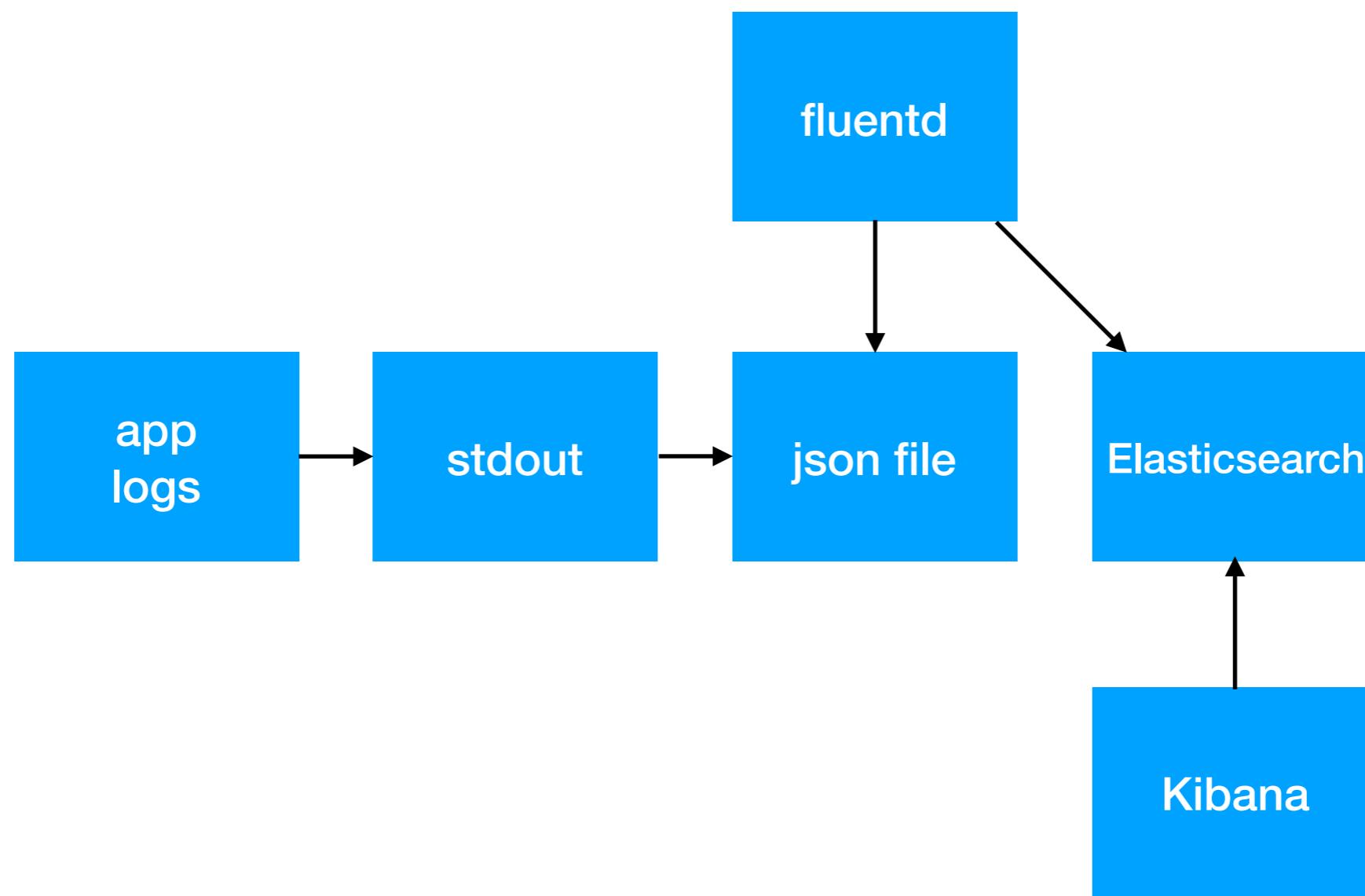


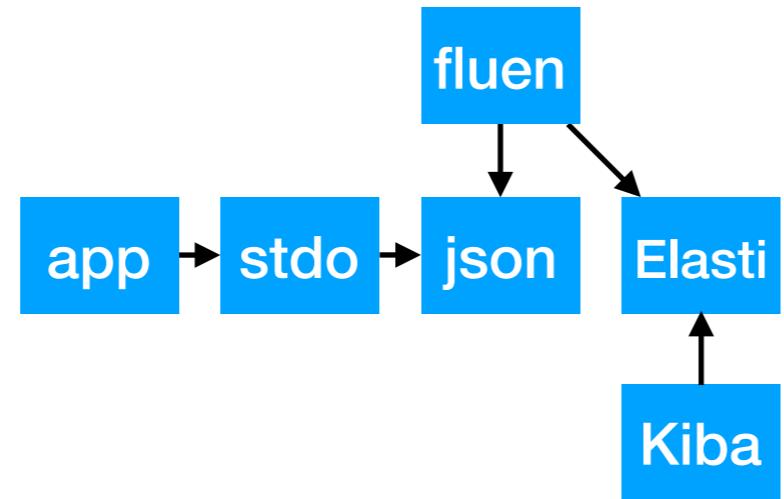




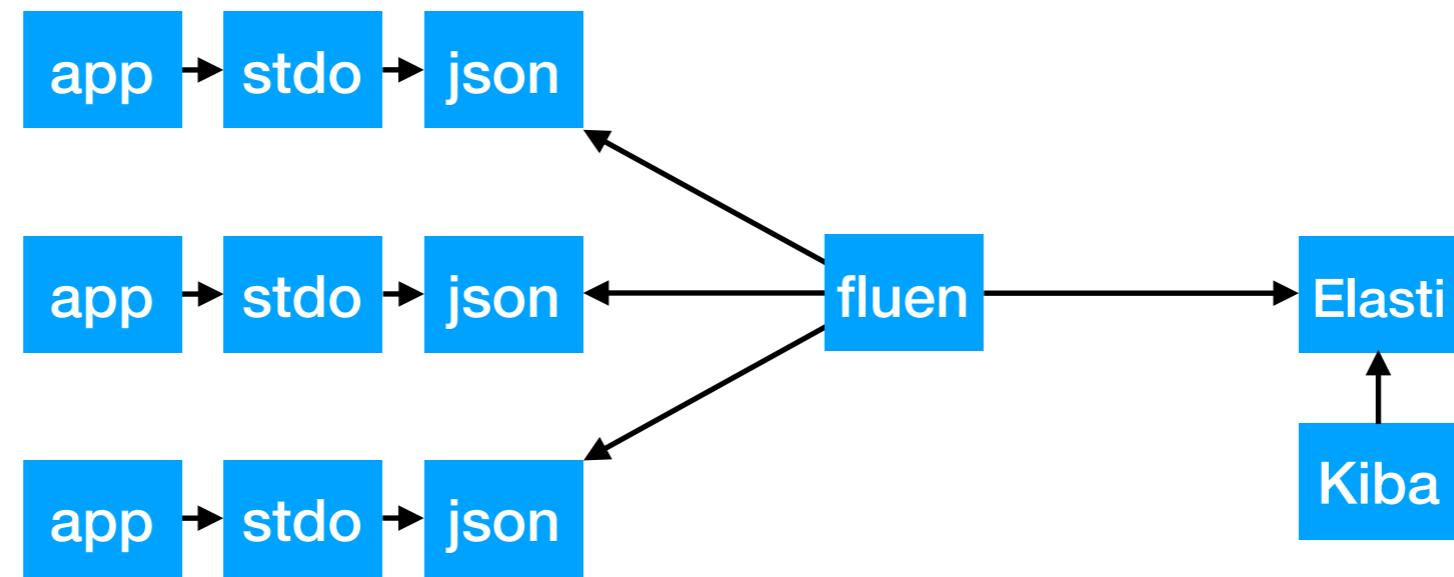


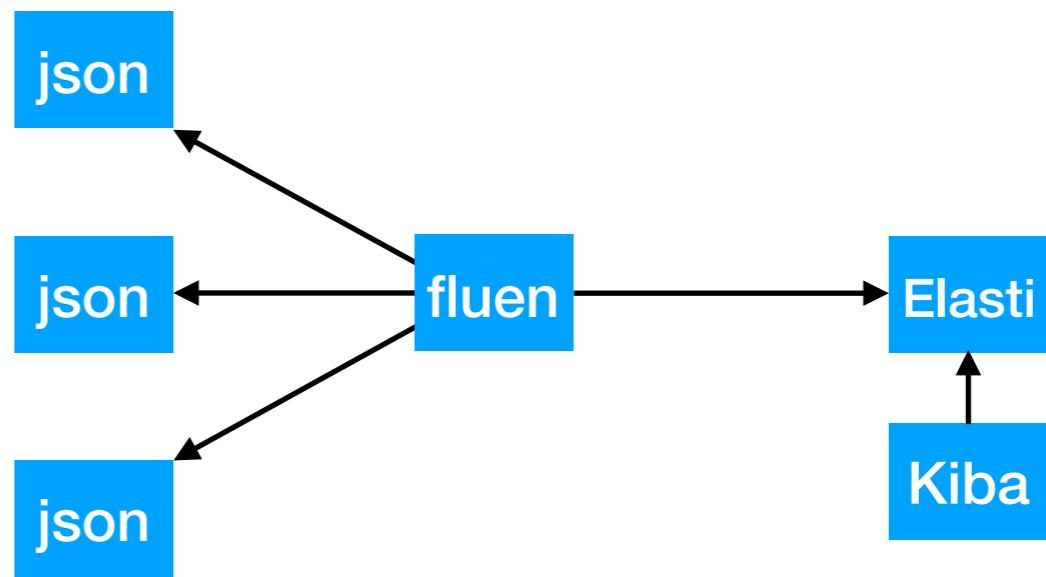


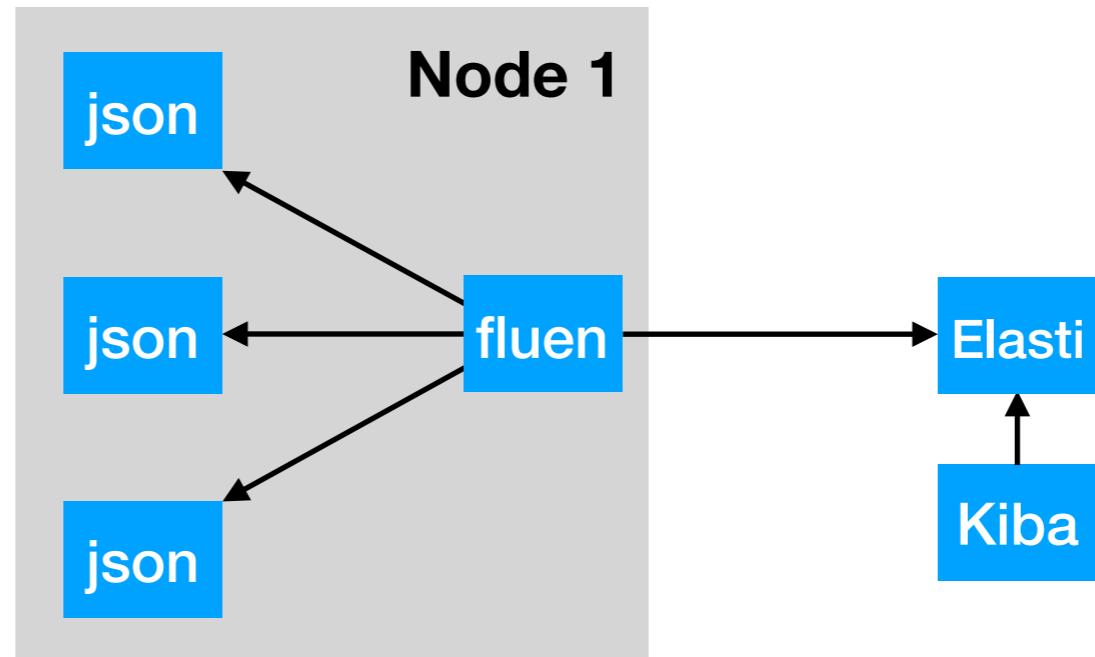


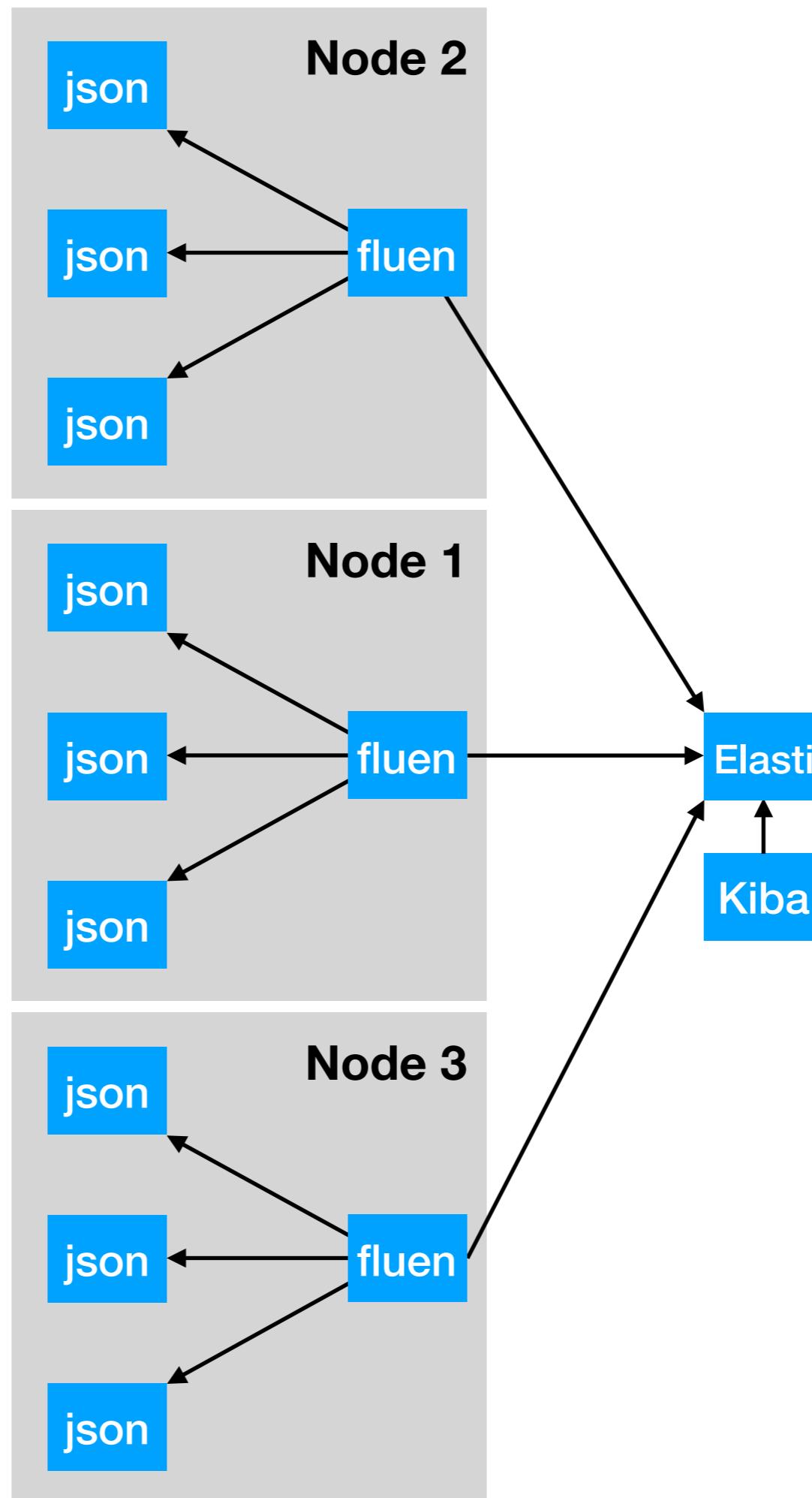


app → stdo → json











**Как запустить одинаковые поды  
сразу на каждом воркере  
(включая будущие ноды)?**

DaemonSet - Kubernetes x +

kubernetes.io/docs/concepts/workloads/controllers/daemonset/ ☆ ...

 **kubernetes** Documentation Blog Partners Community Case Studies English v1.16

# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE Search 🔍

## Concepts

- ▶ Overview
- ▶ Cluster Architecture

### Containers

### Workloads

- ▶ Pods

- ▶ Controllers

- ReplicaSet

- ReplicationController

- Deployments

- StatefulSets

- DaemonSet

- Garbage Collection

- TTL Controller for Finished Resources

- Jobs - Run to Completion

- CronJob

- ▶ Services, Load Balancing, and Networking

## DaemonSet



A DaemonSet ensures that all (or some) Nodes run a copy of a Pod.

As nodes are added to the cluster, Pods are added to them. As nodes are removed from the cluster, those Pods are garbage collected. Deleting a DaemonSet will clean up the Pods it created.

Some typical uses of a DaemonSet are:

- running a cluster storage daemon, such as `glusterd`, `ceph`, on each node.
- running a logs collection daemon on every node, such as `fluentd` or `logstash`.
- running a node monitoring daemon on every node, such as `Prometheus Node Exporter`, `Flowmill`, `Sysdig Agent`, `collectd`, `Dynatrace OneAgent`, `AppDynamics Agent`, `DataDog agent`, `New Relic agent`, `Ganglia gmond` or `Instana Agent`.

Screenshot of a web browser showing the Kubernetes Concepts page for DaemonSets. The URL is [kubernetes.io/docs/concepts/workloads/controllers/daemonset/](https://kubernetes.io/docs/concepts/workloads/controllers/daemonset/). The page title is "DaemonSet - Kubernetes". The navigation bar includes links for Documentation, Blog, Partners, Community, Case Studies, English, v1.16, and a search bar.



# Concepts

HOME GETTING STARTED CONCEPTS TASKS TUTORIALS REFERENCE CONTRIBUTE

Search



## Concepts

- ▶ Overview
- ▶ Cluster Architecture
- ▶ Containers
- ▶ Workloads
  - ▶ Pods
  - ▶ Controllers
    - ReplicaSet
    - ReplicationController
    - Deployments
    - StatefulSets
    - DaemonSet**
    - Garbage Collection
  - TTL Controller for Finished Resources
  - Jobs - Run to Completion
  - CronJob
- ▶ Services, Load Balancing, and Networking

## DaemonSet



A DaemonSet ensures that all (or some) Nodes run a copy of a Pod.

As nodes are added to the cluster, Pods are added to them. As nodes are removed from the cluster, those Pods are garbage collected. Deleting a DaemonSet will clean up the Pods it created.

Some typical uses of a DaemonSet are:

- running a cluster storage daemon, such as `glusterd`, `ceph`, on each node.
- running a logs collection daemon on every node, such as `fluentd` or `logstash`.
- running a node monitoring daemon on every node, such as `Prometheus Node Exporter`, `Flowmill`, `Sysdig Agent`, `collectd`, `Dynatrace OneAgent`, `AppDynamics Agent`, `DataDog agent`, `New Relic agent`, `Ganglia gmond` or `Instana Agent`.





**Как выглядит конфигурация  
fluentd?**

fluent/fluentd-kubernetes-daemonset

github.com/fluent/fluentd-kubernetes-daemonset/

Search or jump to... Pull requests Issues Marketplace Explore

fluent / fluentd-kubernetes-daemonset Watch 32 Star 574 Fork 514

Code Issues 110 Pull requests 22 Actions Projects 0 Wiki Security Insights

Fluentd daemonset for Kubernetes and it Docker image

432 commits 14 branches 0 packages 0 releases 70 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

repeatedly Apply changes to v1.7 images ... ✓ Latest commit c40a851 on Oct 27

<a href="#">docker-image</a>	Apply changes to v1.7 images	last month
<a href="#">plugins</a>	Add plugin directory for new elasticsearch images	3 months ago
<a href="#">templates</a>	Update prometheus plugin version. fix #361	last month
<a href="#">LICENSE</a>	Create LICENSE	6 months ago
<a href="#">MAINTAINING.md</a>	[doc] fix broken links	2 years ago
<a href="#">Makefile</a>	fluentd v1.7.4	last month
<a href="#">README.md</a>	Apply changes to v1.7 images	last month
<a href="#">fluentd-daemonset-cloudwatch-r...</a>	Update image in yaml	3 months ago
<a href="#">fluentd-daemonset-elasticsearch-...</a>	fluentd-daemonset-elasticsearch-rbac.yaml update Daemonset apiVersion...	2 months ago
<a href="#">fluentd-daemonset-elasticsearch-...</a>	Update image in yaml	3 months ago
<a href="#">fluentd-daemonset-forward.yaml</a>	Update image in yaml	3 months ago
<a href="#">fluentd-daemonset-gcs.yaml</a>	Update image in yaml	3 months ago

fluent/fluentd-kubernetes-daemonset X +

github.com/fluent/fluentd-kubernetes-daemonset/

Search or jump to... Pull requests Issues Marketplace Explore

fluent / fluentd-kubernetes-daemonset Watch 32 Star 574 Fork 514

Code Issues 110 Pull requests 22 Actions Projects 0 Wiki Security Insights

Fluentd daemonset for Kubernetes and it Docker image

432 commits 14 branches 0 packages 0 releases 70 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

repeatedly Apply changes to v1.7 images ... ✓ Latest commit c40a851 on Oct 27

<a href="#">docker-image</a>	Apply changes to v1.7 images	last month
<a href="#">plugins</a>	Add plugin directory for new elasticsearch images	3 months ago
<a href="#">templates</a>	Update prometheus plugin version. fix #361	last month
<a href="#">LICENSE</a>	Create LICENSE	6 months ago
<a href="#">MAINTAINING.md</a>	[doc] fix broken links	2 years ago
<a href="#">Makefile</a>	fluentd v1.7.4	last month
<a href="#">README.md</a>	Apply changes to v1.7 images	last month
<a href="#">fluentd-daemonset-cloudwatch-r...</a>	Update image in yaml	3 months ago
<a href="#">fluentd-daemonset-elasticsearch-...</a>	fluentd-daemonset-elasticsearch-rbac.yaml update Daemonset apiVersion...	2 months ago
<a href="#">fluentd-daemonset-elasticsearch-...</a>	Update image in yaml	3 months ago
<a href="#">fluentd-daemonset-forward.yaml</a>	Update image in yaml	3 months ago
<a href="#">fluentd-daemonset-gcs.yaml</a>	Update image in yaml	3 months ago

A red arrow points to the second-to-last commit in the list, which is titled "fluentd-daemonset-elasticsearch-..." and describes updating the Daemonset's API version.

fluentd-kubernetes-daemonset X +

github.com/fluent/fluentd-kubernetes-daemonset/blob/master/fluentd-daemonset-elasticsearch.yaml

Search or jump to... Pull requests Issues Marketplace Explore

fluent / fluentd-kubernetes-daemonset Watch 32 Star 574 Fork 514

Code Issues 109 Pull requests 22 Actions Projects 0 Wiki Security Insights

Branch: master fluentd-kubernetes-daemonset / fluentd-daemonset-elasticsearch.yaml Find file Copy path

repeatedly Update image in yaml ba97354 on Sep 12

8 contributors

64 lines (64 sloc) | 1.86 KB Raw Blame History

```
1 apiVersion: extensions/v1beta1
2 kind: DaemonSet
3 metadata:
4   name: fluentd
5   namespace: kube-system
6   labels:
7     k8s-app: fluentd-logging
8     version: v1
9   spec:
10    template:
11      metadata:
12        labels:
13          k8s-app: fluentd-logging
14          version: v1
15    spec:
16      tolerations:
17        - key: node-role.kubernetes.io/master
18          effect: NoSchedule
19      containers:
20        - name: fluentd
```

https://raw.githubusercontent.com/fluent/fluentd-kubernetes-daemonset/master/fluentd-daemonset-elasticsearch.yaml

```
apiVersion: extensions/v1beta1
kind: DaemonSet
metadata:
  name: fluentd
  namespace: kube-system
  labels:
    k8s-app: fluentd-logging
    version: v1
spec:
  template:
    metadata:
      labels:
        k8s-app: fluentd-logging
        version: v1
    spec:
      tolerations:
      - key: node-role.kubernetes.io/master
        effect: NoSchedule
      containers:
      - name: fluentd
        image: fluent/fluentd-kubernetes-daemonset:v1-debian-elasticsearch
        env:
          - name: FLUENT_ES_HOST
            value: "elasticsearch-logging"
          - name: FLUENT_ES_PORT
            value: "9200"
          - name: FLUENT_ES_SCHEME
            value: "http"
          # Option to configure elasticsearch plugin with self signed certs
          # =====
          - name: FLUENT_ES_SSL_VERIFY
            value: "true"
          # K-Pack Authentication
          # =====
          - name: FLUENT_ES_USER
            value: "elastic"
          - name: FLUENT_ES_PASSWORD
            value: "changeme"
          # Logz.io Authentication
          # =====
          - name: LOGZIO_TOKEN
            value: "ThisIsASuperLongToken"
          - name: LOGZIO_LOGTYPE
            value: "kubernetes"
      resources:
        limits:
          memory: 200Mi
        requests:
          cpu: 100m
          memory: 200Mi
      volumeMounts:
```

The screenshot shows a web browser window with the URL <https://raw.githubusercontent.com/fluent/fluentd-kubernetes-daemonset/master/fluentd-daemonset-elasticsearch.yaml>. The page displays a YAML configuration file for a Kubernetes DaemonSet. A red arrow points from the word 'DaemonSet' in large red text on the right towards the 'kind: DaemonSet' line in the code.

```
apiVersion: extensions/v1beta1
kind: DaemonSet ← DaemonSet
metadata:
  name: fluentd
  namespace: kube-system
  labels:
    k8s-app: fluentd-logging
    version: v1
spec:
  template:
    metadata:
      labels:
        k8s-app: fluentd-logging
        version: v1
    spec:
      tolerations:
      - key: node-role.kubernetes.io/master
        effect: NoSchedule
      containers:
      - name: fluentd
        image: fluent/fluentd-kubernetes-daemonset:v1-debian-elasticsearch
        env:
          - name: FLUENT_ES_HOST
            value: "elasticsearch-logging"
          - name: FLUENT_ES_PORT
            value: "9200"
          - name: FLUENT_ES_SCHEME
            value: "http"
          # Option to configure elasticsearch plugin with self signed certs
          # =====
          - name: FLUENT_ES_SSL_VERIFY
            value: "true"
          # K-Pack Authentication
          # =====
          - name: FLUENT_ES_USER
            value: "elastic"
          - name: FLUENT_ES_PASSWORD
            value: "changeme"
          # Logz.io Authentication
          # =====
          - name: LOGZIO_TOKEN
            value: "ThisIsASuperLongToken"
          - name: LOGZIO_LOGTYPE
            value: "kubernetes"
      resources:
        limits:
          memory: 200Mi
        requests:
          cpu: 100m
          memory: 200Mi
      volumeMounts:
```

## DaemonSet

https://raw.githubusercontent.com/fluent/fluentd-kubernetes-daemonset/master/fluentd-daemonset-elasticsearch.yaml

```
apiVersion: extensions/v1beta1
kind: DaemonSet ← DaemonSet
metadata:
  name: fluentd
  namespace: kube-system
  labels:
    k8s-app: fluentd-logging
    version: v1
spec:
  template:
    metadata:
      labels:
        k8s-app: fluentd-logging
        version: v1
    spec:
      tolerations:
      - key: node-role.kubernetes.io/master
        effect: NoSchedule
      containers:
      - name: fluentd
        image: fluent/fluentd-kubernetes-daemonset:v1-debian-elasticsearch
        env:
          - name: FLUENT_ES_HOST
            value: "elasticsearch-logging"
          - name: FLUENT_ES_PORT
            value: "9200"
          - name: FLUENT_ES_SCHEME
            value: "http"
          # Option to configure elasticsearch plugin with self signed certs
          # =====
          - name: FLUENT_ES_SSL_VERIFY
            value: "true"
          # K-Pack Authentication
          # =====
          - name: FLUENT_ES_USER
            value: "elastic"
          - name: FLUENT_ES_PASSWORD
            value: "changeme"
          # Logz.io Authentication
          # =====
          - name: LOGZIO_TOKEN
            value: "ThisIsASuperLongToken"
          - name: LOGZIO_LOGTYPE
            value: "kubernetes"
      resources:
        limits:
          memory: 200Mi
        requests:
          cpu: 100m
          memory: 200Mi
      volumeMounts:
```

**Готовый образ  
с нужными гемами**

The screenshot shows a web browser window with the URL <https://raw.githubusercontent.com/fluent/fluentd-kubernetes-daemonset/master/fluentd-daemonset-elasticsearch.yaml>. The page displays a YAML configuration file for a Kubernetes DaemonSet. The file defines a pod template for the 'fluentd' application, specifying its image, environment variables, and resource requirements. A red arrow points from the word 'DaemonSet' in bold red text at the top right to the 'kind: DaemonSet' line in the YAML code.

```
apiVersion: extensions/v1beta1
kind: DaemonSet
metadata:
  name: fluentd
  namespace: kube-system
  labels:
    k8s-app: fluentd-logging
    version: v1
spec:
  template:
    metadata:
      labels:
        k8s-app: fluentd-logging
        version: v1
    spec:
      tolerations:
      - key: node-role.kubernetes.io/master
        effect: NoSchedule
      containers:
      - name: fluentd
        image: fluent/fluentd-kubernetes-daemonset:v1-debian-elasticsearch
        env:
          - name: FLUENT_ES_HOST
            value: "elasticsearch-logging"
          - name: FLUENT_ES_PORT
            value: "9200"
          - name: FLUENT_ES_SCHEME
            value: "http"
          # Option to configure elasticsearch plugin with self signed certs
          # =====
          - name: FLUENT_ES_SSL_VERIFY
            value: "true"
          # K-Pack Authentication
          # =====
          - name: FLUENT_ES_USER
            value: "elastic"
          - name: FLUENT_ES_PASSWORD
            value: "changeme"
          # Logz.io Authentication
          # =====
          - name: LOGZIO_TOKEN
            value: "ThisIsASuperLongToken"
          - name: LOGZIO_LOGTYPE
            value: "kubernetes"
      resources:
        limits:
          memory: 200Mi
        requests:
          cpu: 100m
          memory: 200Mi
      volumeMounts:
```

## DaemonSet

Готовый образ  
с нужными гемами

Параметры  
доступа к эластику

https://raw.githubusercontent.com/fluent/fluentd-kubernetes-daemonset/master/fluentd-daemonset-elasticsearch.yaml

```
apiVersion: extensions/v1beta1
kind: DaemonSet
metadata:
  name: fluentd
  namespace: kube-system
  labels:
    k8s-app: fluentd-logging
    version: v1
spec:
  template:
    metadata:
      labels:
        k8s-app: fluentd-logging
        version: v1
    spec:
      tolerations:
      - key: node-role.kubernetes.io/master
        effect: NoSchedule
      containers:
      - name: fluentd
        image: fluent/fluentd-kubernetes-daemonset:v1-debian-elasticsearch
        env:
          - name: FLUENT_ES_HOST
            value: "elasticsearch-logging"
          - name: FLUENT_ES_PORT
            value: "9200"
          - name: FLUENT_ES_SCHEME
            value: "http"
          # Option to configure elasticsearch plugin with self signed certs
          # =====
          - name: FLUENT_ES_SSL_VERIFY
            value: "true"
          # K-Pack Authentication
          # =====
          - name: FLUENT_ES_USER
            value: "elastic"
          - name: FLUENT_ES_PASSWORD
            value: "changeme"
          # Logz.io Authentication
          # =====
          - name: LOGZIO_TOKEN
            value: "ThisIsASuperLongToken"
          - name: LOGZIO_LOGTYPE
            value: "kubernetes"
      resources:
        limits:
          memory: 200Mi
        requests:
          cpu: 100m
          memory: 200Mi
      volumeMounts:
```

Готовый образ  
с нужными гемами

fluentd-kubernetes-daemonset X +

github.com/fluent/fluentd-kubernetes-daemonset/tree/master/docker-image/v1.7/debian-elasticsearch7

Search or jump to... Pull requests Issues Marketplace Explore

fluent / fluentd-kubernetes-daemonset Watch 32 Star 574 Fork 514

Code Issues 109 Pull requests 22 Actions Projects 0 Wiki Security Insights

Branch: master Create new file Upload files Find file History

repeatedly Apply changes to v1.7 images ... ✓ Latest commit c40a851 on Oct 27

..

conf	Separate elasticsearch images	3 months ago
hooks	Apply changes to v1.7 images	last month
plugins	fluentd v1.7.1	3 months ago
.dockerignore	Separate elasticsearch images	3 months ago
Dockerfile	Apply changes to v1.7 images	last month
Gemfile	Apply changes to v1.7 images	last month
Gemfile.lock	Apply changes to v1.7 images	last month
entrypoint.sh	edit the root template instead of generated files	3 months ago



fluentd-kubernetes-daemonset X +

github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Dockerfile

Search or jump to... Pull requests Issues Marketplace Explore

fluent / fluentd-kubernetes-daemonset Watch 32 Star 574 Fork 514

Code Issues 109 Pull requests 22 Actions Projects 0 Wiki Security Insights

Branch: master fluentd-kubernetes-daemonset / docker-image / v1.7 / debian-elasticsearch7 / Dockerfile Find file Copy path

repeatedly Apply changes to v1.7 images c40a851 on Oct 27

1 contributor

49 lines (42 sloc) 1.62 KB Raw Blame History

```
1 # AUTOMATICALLY GENERATED
2 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/Dockerfile.erb
3
4 FROM fluent/fluentd:v1.7.4-debian-1.0
5
6 LABEL maintainer="Eduardo Silva <eduardo@treasure-data.com>"
7 USER root
8 WORKDIR /home/fluent
9 ENV PATH /fluentd/vendor/bundle/ruby/2.6.0/bin:$PATH
10 ENV GEM_PATH /fluentd/vendor/bundle/ruby/2.6.0
11 ENV GEM_HOME /fluentd/vendor/bundle/ruby/2.6.0
12 # skip runtime bundler installation
13 ENV FLUENTD_DISABLE_BUNDLER_INJECTION 1
14
15 COPY Gemfile* /fluentd/
16 RUN buildDeps="sudo make gcc g++ libc-dev libffi-dev" \
17     && apt-get update \
18     && apt-get upgrade -y \
19     && apt-get install \
20     -y --no-install-recommends \
```

```
fluentd-kubernetes-daemonse ✘ +  
← → C https://github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Dockerfile  
12 # skip runtime bundler installation  
13 ENV FLUENTD_DISABLE_BUNDLER_INJECTION 1  
14  
15 COPY Gemfile* /fluentd/  
16 RUN buildDeps="sudo make gcc g++ libc-dev libffi-dev" \  
17     && apt-get update \  
18     && apt-get upgrade -y \  
19     && apt-get install \  
20     -y --no-install-recommends \  
21     $buildDeps net-tools \  
22     && gem install bundler --version 1.16.2 \  
23     && bundle config silence_root_warning true \  
24     && bundle install --gemfile=/fluentd/Gemfile --path=/fluentd/vendor/bundle \  
25     && SUDO_FORCE_REMOVE=yes \  
26     apt-get purge -y --auto-remove \  
27             -o APT::AutoRemove::RecommendsImportant=false \  
28             $buildDeps \  
29     && rm -rf /var/lib/apt/lists/* \  
30     && gem sources --clear-all \  
31     && rm -rf /tmp/* /var/tmp/* /usr/lib/ruby/gems/*/.cache/*.gem  
32  
33 # Copy configuration files  
34 COPY ./conf/fluent.conf /fluentd/etc/  
35 COPY ./conf/systemd.conf /fluentd/etc/  
36 COPY ./conf/kubernetes.conf /fluentd/etc/  
37 COPY ./conf/prometheus.conf /fluentd/etc/  
38 RUN touch /fluentd/etc/disable.conf  
39  
40 # Copy plugins  
41 COPY plugins /fluentd/plugins/  
42 COPY entrypoint.sh /fluentd/entrypoint.sh  
43  
44 # Environment variables  
45 ENV FLUENTD_OPT=""  
46 ENV FLUENTD_CONF="fluent.conf"  
47  
48 # Overwrite ENTRYPOINT to run fluentd as root for /var/log / /var/lib  
49 ENTRYPOINT ["tini", "--", "/fluentd/entrypoint.sh"]
```

```
fluentd-kubernetes-daemonse ✘ +  
github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Dockerfile  
  
12 # skip runtime bundler installation  
13 ENV FLUENTD_DISABLE_BUNDLER_INJECTION 1  
14  
15 COPY Gemfile* /fluentd/  
16 RUN buildDeps="sudo make gcc g++ libc-dev libffi-dev" \  
17     && apt-get update \  
18     && apt-get upgrade -y \  
19     && apt-get install \  
20     -y --no-install-recommends \  
21     $buildDeps net-tools \  
22     && gem install bundler --version 1.16.2 \  
23     && bundle config silence_root_warning true \  
24     && bundle install --gemfile=/fluentd/Gemfile --path=/fluentd/vendor/bundle \  
25     && SUDO_FORCE_REMOVE=yes \  
26     apt-get purge -y --auto-remove \  
27             -o APT::AutoRemove::RecommendsImportant=false \  
28             $buildDeps \  
29     && rm -rf /var/lib/apt/lists/* \  
30     && gem sources --clear-all \  
31     && rm -rf /tmp/* /var/tmp/* /usr/lib/ruby/gems/*/cache/*.gem  
32  
33 # Copy configuration files  
34 COPY ./conf/fluent.conf /fluentd/etc/  
35 COPY ./conf/systemd.conf /fluentd/etc/  
36 COPY ./conf/kubernetes.conf /fluentd/etc/  
37 COPY ./conf/prometheus.conf /fluentd/etc/  
38 RUN touch /fluentd/etc/disable.conf  
39  
40 # Copy plugins  
41 COPY plugins /fluentd/plugins/  
42 COPY entrypoint.sh /fluentd/entrypoint.sh  
43  
44 # Environment variables  
45 ENV FLUENTD_OPT=""  
46 ENV FLUENTD_CONF="fluent.conf"  
47  
48 # Overwrite ENTRYPOINT to run fluentd as root for /var/log / /var/lib  
49 ENTRYPOINT ["tini", "--", "/fluentd/entrypoint.sh"]
```

bundle install

fluentd-kubernetes-daemonset X +

← → C [github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Gemfile](https://github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Gemfile)

Branch: master [Jump to](#) Find file Copy path

 repeatedly Apply changes to v1.7 images c40a851 on Oct 27

1 contributor

20 lines (18 sloc) | 720 Bytes

Raw Blame History

You're using code navigation to jump to definitions or references. [Learn more](#) or give us feedback

```
1 # AUTOMATICALLY GENERATED
2 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/Gemfile.erb
3
4 source "https://rubygems.org"
5
6 gem "fluentd", "1.7.4"
7 gem "uj", "3.8.1"
8 gem "fluent-plugin-multi-format-parser", "~> 1.0.0"
9 gem "fluent-plugin-concat", "~> 2.4.0"
10 gem "fluent-plugin-grok-parser", "~> 2.5.0"
11 gem "fluent-plugin-prometheus", "~> 1.6.1"
12 gem 'fluent-plugin-json-in-json-2', ">= 1.0.2"
13 gem "fluent-plugin-record-modifier", "~> 2.0.0"
14 gem "fluent-plugin-detect-exceptions", "~> 0.0.12"
15 gem "fluent-plugin-rewrite-tag-filter", "~> 2.2.0"
16 gem "elasticsearch", "~> 7.0"
17 gem "fluent-plugin-elasticsearch", "~> 3.5.5"
18 gem "fluent-plugin-kubernetes_metadata_filter", "~> 2.3.0"
19 gem "ffi"
20 gem "fluent-plugin-systemd", "~> 1.0.1"
```

fluentd-kubernetes-daemonset X +

← → C [github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Gemfile](https://github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Gemfile)

Branch: master [Jump to](#)

 repeatedly Apply changes to v1.7 images c40a851 on Oct 27

1 contributor

20 lines (18 sloc) | 720 Bytes

Raw Blame History

You're using code navigation to jump to definitions or references. [Learn more](#) or give us feedback

```
1 # AUTOMATICALLY GENERATED
2 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/Gemfile.erb
3
4 source "https://rubygems.org"
5
6 gem "fluentd", "1.7.4"
7 gem "uj", "3.8.1"
8 gem "fluent-plugin-multi-format-parser", "~> 1.0.0"
9 gem "fluent-plugin-concat", "~> 2.4.0"
10 gem "fluent-plugin-grok-parser", "~> 2.5.0"
11 gem "fluent-plugin-prometheus", "~> 1.6.1"
12 gem 'fluent-plugin-json-in-json-2', ">= 1.0.2"
13 gem "fluent-plugin-record-modifier", "~> 2.0.0"
14 gem "fluent-plugin-detect-exceptions", "~> 0.0.12"
15 gem "fluent-plugin-rewrite-tag-filter", "~> 2.2.0"
16 gem "elasticsearch", "~> 7.0"
17 gem "fluent-plugin-elasticsearch", "~> 3.5.5" ← elasticsearch plugin
18 gem "fluent-plugin-kubernetes_metadata_filter", "~> 2.3.0" ← kubernetes plugin
19 gem "ffi"
20 gem "fluent-plugin-systemd", "~> 1.0.1"
```

fluentd-kubernetes-daemonset X +

github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Gemfile

Branch: master **fluentd-kubernetes-daemonset / docker-image / v1.7 / debian-elasticsearch7 / Gemfile** Find file Copy path

Jump to ▾

repeatedly Apply changes to v1.7 images c40a851 on Oct 27

1 contributor

20 lines (18 sloc) | 720 Bytes Raw Blame History

You're using code navigation to jump to definitions or references. Learn more or give us feedback

```
1 # AUTOMATICALLY GENERATED
2 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/Gemfile.erb
3
4 source "https://rubygems.org"
5
6 gem "fluentd", "1.7.4"
7 gem "uj", "3.8.1"
8 gem "fluent-plugin-multi-format-parser", "~> 1.0.0"
9 gem "fluent-plugin-concat", "~> 2.4.0"
10 gem "fluent-plugin-grok-parser", "~> 2.5.0"
11 gem "fluent-plugin-prometheus", "~> 1.6.1"
12 gem 'fluent-plugin-json-in-json-2', ">= 1.0.2" ← json-in-json plugin
13 gem "fluent-plugin-record-modifier", "~> 2.0.0"
14 gem "fluent-plugin-detect-exceptions", "~> 0.0.12"
15 gem "fluent-plugin-rewrite-tag-filter", "~> 2.2.0"
16 gem "elasticsearch", "~> 7.0"
17 gem "fluent-plugin-elasticsearch", "~> 3.5.5" ← elasticsearch plugin
18 gem "fluent-plugin-kubernetes_metadata_filter", "~> 2.3.0" ← kubernetes plugin
19 gem "ffi"
20 gem "fluent-plugin-systemd", "~> 1.0.1"
```

fluentd-kubernetes-daemonset X +

github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/Gemfile

Branch: master **fluentd-kubernetes-daemonset / docker-image / v1.7 / debian-elasticsearch7 / Gemfile** Find file Copy path

Jump to ▾

repeatedly Apply changes to v1.7 images c40a851 on Oct 27

1 contributor

20 lines (18 sloc) | 720 Bytes Raw Blame History

You're using code navigation to jump to definitions or references. Learn more or give us feedback

```
1 # AUTOMATICALLY GENERATED
2 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/Gemfile.erb
3
4 source "https://rubygems.org"
5
6 gem "fluentd", "1.7.4"
7 gem "uj", "3.8.1"
8 gem "fluent-plugin-multi-format-parser", "~> 1.0.0"
9 gem "fluent-plugin-concat", "~> 2.4.0"
10 gem "fluent-plugin-grok-parser", "~> 2.5.0"
11 gem "fluent-plugin-prometheus", "~> 1.6.1" ← prometheus plugin
12 gem 'fluent-plugin-json-in-json-2', ">= 1.0.2" ← json-in-json plugin
13 gem "fluent-plugin-record-modifier", "~> 2.0.0"
14 gem "fluent-plugin-detect-exceptions", "~> 0.0.12"
15 gem "fluent-plugin-rewrite-tag-filter", "~> 2.2.0"
16 gem "elasticsearch", "~> 7.0"
17 gem "fluent-plugin-elasticsearch", "~> 3.5.5" ← elasticsearch plugin
18 gem "fluent-plugin-kubernetes_metadata_filter", "~> 2.3.0" ← kubernetes plugin
19 gem "ffi"
20 gem "fluent-plugin-systemd", "~> 1.0.1"
```

fabric8io/fluent-plugin-kubernetes\_metadata\_filter

github.com/fabric8io/fluent-plugin-kubernetes\_metadata\_filter

Search or jump to... Pull requests Issues Marketplace Explore

fabric8io / fluent-plugin-kubernetes\_metadata\_filter Used by 352 Watch 27 Star 232 Fork 110

Code Issues 19 Pull requests 4 Actions Projects 0 Wiki Security Insights

Enrich your fluentd events with Kubernetes metadata

212 commits

7 branches

0 packages

58 releases

33 contributors

Apache-2.0

Branch: master

New pull request

Create new file

Upload files

Find file

Clone or download

tiewei and jcantrill Added brackets around IPv6 host address (#197)

Latest commit caa4997 on Nov 1

.circleci	upgrade config file version to 2.1	7 months ago
lib/fluent/plugin	Added brackets around IPv6 host address (#197)	last month
test	Improve Kubernetes pod lookups (#189)	2 months ago
.gitignore	Add vendor dir to ignored	3 years ago
Cemfile	Add stats to cache and watch access	2 years ago
LICENSE.txt	Initial commit	5 years ago
README.md	Update README.md	4 months ago
Rakefile	refactor cache:	2 years ago
fluent-plugin-kubernetes_metadata_filter...	bump 2.4.0 (#192)	2 months ago

README.md

fabric8io/fluent-plugin-kubernetes\_metadata\_filter

LICENSE.txt Initial commit 5 years ago

README.md Update README.md 4 months ago

Rakefile refactor cache: 2 years ago

fluent-plugin-kubernetes\_metadata\_filter... bump 2.4.0 (#192) 2 months ago

README.md

# fluent-plugin-kubernetes\_metadata\_filter, a plugin for Fluentd

?

The Kubernetes metadata plugin filter enriches container log records with pod and namespace metadata.

This plugin derives basic metadata about the container that emitted a given log record using the source of the log record. Records from journald provide metadata about the container environment as named fields. Records from JSON files encode metadata about the container in the file name. The initial metadata derived from the source is used to lookup additional metadata about the container's associated pod and namespace (e.g. UUIDs, labels, annotations) when the kubernetes\_url is configured. If the plugin cannot authoritatively determine the namespace of the container emitting a log record, it will use an 'orphan' namespace ID in the metadata. This behavior supports multi-tenant systems that rely on the authenticity of the namespace for proper log isolation.

## Requirements

fluent-plugin-kubernetes_metadata_filter	fluentd	ruby
>= 2.0.0	>= v0.14.20	>= 2.1
< 2.0.0	>= v0.12.0	>= 1.9

fabric8io/fluent-plugin-kubernetes\_metadata\_filter

LICENSE.txt Initial commit 5 years ago

README.md Update README.md 4 months ago

Rakefile refactor cache: 2 years ago

fluent-plugin-kubernetes\_metadata\_filter... bump 2.4.0 (#192) 2 months ago

**README.md**

# fluent-plugin-kubernetes\_metadata\_filter, a plugin for Fluentd

?

The Kubernetes metadata plugin filter enriches container log records with pod and namespace metadata.

---

This plugin derives basic metadata about the container that emitted a given log record using the source of the log record. Records from journald provide metadata about the container environment as named fields. Records from JSON files encode metadata about the container in the file name. The initial metadata derived from the source is used to lookup additional metadata about the container's associated pod and namespace (e.g. UUIDs, labels, annotations) when the kubernetes\_url is configured. If the plugin cannot authoritatively determine the namespace of the container emitting a log record, it will use an 'orphan' namespace ID in the metadata. This behavior supports multi-tenant systems that rely on the authenticity of the namespace for proper log isolation.

## Requirements

fluent-plugin-kubernetes_metadata_filter	fluentd	ruby
>= 2.0.0	>= v0.14.20	>= 2.1
< 2.0.0	>= v0.12.0	>= 1.9

fabric8io/fluent-plugin-kubernetes\_metadata\_filter

Assuming following inputs are coming from a log file named /var/log/containers/fabric8-console-controller-98rqc\_default\_fabric8-console-container-df14e0d5ae4c07284fa636d739c8fc2e6b52bc344658de7d3f08c36a2e804115.log :

```
{  
  "log": "2015/05/05 19:54:41 \n",  
  "stream": "stderr",  
  "time": "2015-05-05T19:54:41.240447294Z"  
}
```

← **Было**

Then output becomes as belows

```
{  
  "log": "2015/05/05 19:54:41 \n",  
  "stream": "stderr",  
  "docker": {  
    "id": "df14e0d5ae4c07284fa636d739c8fc2e6b52bc344658de7d3f08c36a2e804115",  
  },  
  "kubernetes": {  
    "host": "jimmi-redhat.localnet",  
    "pod_name": "fabric8-console-controller-98rqc",  
    "pod_id": "c76927af-f563-11e4-b32d-54ee7527188d",  
    "container_name": "fabric8-console-container",  
    "namespace_name": "default",  
    "namespace_id": "23437884-8e08-4d95-850b-e94378c9b2fd",  
    "namespace_annotations": {  
      "fabric8.io/git-commit": "5e1116f63df0bac2a80bdae2ebdc563577bbdf3c"  
    },  
    "namespace_labels": {  
      "product_version": "v1.0.0"  
    },  
    "labels": {  
      "component": "fabric8Console"  
    }  
  }  
}
```

↑ **Стало**

fluentd-kubernetes-daemonset X +

github.com/fluent/fluentd-kubernetes-daemonset/tree/master/docker-image/v1.7/debian-elasticsearch7

Search or jump to... Pull requests Issues Marketplace Explore

fluent / fluentd-kubernetes-daemonset Watch 32 Star 574 Fork 514

Code Issues 109 Pull requests 22 Actions Projects 0 Wiki Security Insights

Branch: master Create new file Upload files Find file History

fluentd-kubernetes-daemonset / docker-image / v1.7 / debian-elasticsearch7 /

repeatedly Apply changes to v1.7 images ... ✓ Latest commit c40a851 on Oct 27

..

conf	Separate elasticsearch images	3 months ago
hooks	Apply changes to v1.7 images	last month
plugins	fluentd v1.7.1	3 months ago
.dockerignore	Separate elasticsearch images	3 months ago
Dockerfile	Apply changes to v1.7 images	last month
Gemfile	Apply changes to v1.7 images	last month
Gemfile.lock	Apply changes to v1.7 images	last month
entrypoint.sh	edit the root template instead of generated files	3 months ago



A screenshot of a GitHub repository page for "fluent / fluentd-kubernetes-daemonset". The page shows the file "fluent.conf" at the path "fluentd-kubernetes-daemonset / docker-image / v1.7 / debian-elasticsearch7 / conf / fluent.conf". The repository has 32 stars and 514 forks. The "Code" tab is selected, showing 109 issues, 22 pull requests, 0 actions, 0 projects, a wiki, security, and insights.

Branch: master [fluentd-kubernetes-daemonset](#) / [docker-image](#) / [v1.7](#) / [debian-elasticsearch7](#) / [conf](#) / [fluent.conf](#)

[Find file](#) [Copy path](#)

 repeatedly Separate elasticsearch images

1d09376 on Aug 29

1 contributor

39 lines (36 sloc) | 1.91 KB

[Raw](#) [Blame](#) [History](#)   

```
1
2 # AUTOMATICALLY GENERATED
3 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/conf/fluent.conf.erb
4
5 @include "#{ENV['FLUENTD_SYSTEMD_CONF']} || 'systemd'.conf"
6 @include "#{ENV['FLUENTD_PROMETHEUS_CONF']} || 'prometheus'.conf"
7 @include kubernetes.conf
8 @include conf.d/*.conf
9
10 <match **>
11   @type elasticsearch
12   @id cut_es
13   @log_level info
14   include_tag_key true
15   host "#{ENV['FLUENT_ELASTICSEARCH_HOST']}"
16   port "#{ENV['FLUENT_ELASTICSEARCH_PORT']}"
17   path "#{ENV['FLUENT_ELASTICSEARCH_PATH']}"
18   scheme "#{ENV['FLUENT_ELASTICSEARCH_SCHEME']} || 'http'"
19   ssl_verify "#{ENV['FLUENT_ELASTICSEARCH_SSL_VERIFY']} || 'true'"
```

```
# DO NOT EDIT THIS FILE DIRECTLY, USE ./scripts/config/fluenteconf.sh
4
5  @include "#{ENV['FLUENTD_SYSTEMD_CONF']} || 'systemd'.conf"
6  @include "#{ENV['FLUENTD_PROMETHEUS_CONF']} || 'prometheus'.conf"
7  @include kubernetes.conf
8  @include conf.d/*.conf
9
10 <match **>
11   @type elasticsearch
12   @id cut_es
13   @log_level info
14   include_tag_key true
15   host "#{ENV['FLUENT_ELASTICSEARCH_HOST']}"
16   port "#{ENV['FLUENT_ELASTICSEARCH_PORT']}"
17   path "#{ENV['FLUENT_ELASTICSEARCH_PATH']}"
18   scheme "#{ENV['FLUENT_ELASTICSEARCH_SCHEME']} || 'http'"
19   ssl_verify "#{ENV['FLUENT_ELASTICSEARCH_SSL_VERIFY']} || 'true'"
20   ssl_version "#{ENV['FLUENT_ELASTICSEARCH_SSL_VERSION']} || 'TLSv1'"
21   user "#{ENV['FLUENT_ELASTICSEARCH_USER']}"
22   password "#{ENV['FLUENT_ELASTICSEARCH_PASSWORD']}"
23   reload_connections "#{ENV['FLUENT_ELASTICSEARCH_RELOAD_CONNECTIONS']} || 'false'"
24   reconnect_on_error "#{ENV['FLUENT_ELASTICSEARCH_RECONNECT_ON_ERROR']} || 'true'"
25   reload_on_failure "#{ENV['FLUENT_ELASTICSEARCH_RELOAD_ON_FAILURE']} || 'true'"
26   log_es_400_reason "#{ENV['FLUENT_ELASTICSEARCH_LOG_ES_400_REASON']} || 'false'"
27   logstash_prefix "#{ENV['FLUENT_ELASTICSEARCH_LOGSTASH_PREFIX']} || 'logstash'"
28   logstash_format "#{ENV['FLUENT_ELASTICSEARCH_LOGSTASH_FORMAT']} || 'true'"
29   index_name "#{ENV['FLUENT_ELASTICSEARCH_LOGSTASH_INDEX_NAME']} || 'logstash'"
30   type_name "#{ENV['FLUENT_ELASTICSEARCH_LOGSTASH_TYPE_NAME']} || 'fluentd'"
31   <buffer>
32     flush_thread_count "#{ENV['FLUENT_ELASTICSEARCH_BUFFER_FLUSH_THREAD_COUNT']} || '8'"
33     flush_interval "#{ENV['FLUENT_ELASTICSEARCH_BUFFER_FLUSH_INTERVAL']} || '5s'"
34     chunk_limit_size "#{ENV['FLUENT_ELASTICSEARCH_BUFFER_CHUNK_LIMIT_SIZE']} || '2M'"
35     queue_limit_length "#{ENV['FLUENT_ELASTICSEARCH_BUFFER_QUEUE_LIMIT_LENGTH']} || '32'"
36     retry_max_interval "#{ENV['FLUENT_ELASTICSEARCH_BUFFER_RETRY_MAX_INTERVAL']} || '30'"
37     retry_forever true
38   </buffer>
39 </match>
```

A screenshot of a GitHub repository page for "fluentd-kubernetes-daemonset". The URL in the address bar is [github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/conf/kubernetes.conf](https://github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/conf/kubernetes.conf). The repository has 32 issues, 574 stars, and 514 forks. The "Code" tab is selected. The file path is "fluentd-kubernetes-daemonset / docker-image / v1.7 / debian-elasticsearch7 / conf / kubernetes.conf". The commit history shows one commit by "repeatedly" on Aug 29, which separates Elasticsearch images. There are 192 lines (175 sloc) and 4.78 KB of code.

Branch: master [fluentd-kubernetes-daemonset / docker-image / v1.7 / debian-elasticsearch7 / conf / kubernetes.conf](#) Find file Copy path

 repeatedly Separate elasticsearch images 1d09376 on Aug 29  
1 contributor

192 lines (175 sloc) | 4.78 KB Raw Blame History

```
1 # AUTOMATICALLY GENERATED
2 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/conf/kubernetes.conf.erb
3
4 <match fluent.*>
5   @type null
6 </match>
7
8 <source>
9   @type tail
10  @id in_tail_container_logs
11  path /var/log/containers/*.log
12  pos_file /var/log/fluentd-containers.log.pos
13  tag kubernetes.*
14  read_from_head true
15 <parse>
16   @type "#{ENV['FLUENT_CONTAINER_TAIL_PARSER_TYPE']} || 'json'"
17   time_format %Y-%m-%dT%H:%M:%S.%NZ
18 </parse>
19 </source>
```

fluentd-kubernetes-daemonse X +

← → C [github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/conf/kubernetes.conf](https://github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/conf/kubernetes.conf) ⭐

1 contributor

192 lines (175 sloc) | 4.78 KB

Raw Blame History

```
1 # AUTOMATICALLY GENERATED
2 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/conf/kubernetes.conf.erb
3
4 <match fluent.*>
5   @type null
6 </match>
7
8 <source>
9   @type tail
10  @id in_tail_container_logs
11  path /var/log/containers/*.log
12  pos_file /var/log/fluentd-containers.log.pos
13  tag kubernetes.-
14  read_from_head true
15 <parse>
16   @type "#{ENV['FLUENT_CONTAINER_TAIL_PARSER_TYPE']} || 'json'"
17   time_format %Y-%m-%dT%H:%M:%S.%NZ
18 </parse>
19 </source>
20
21 <source>
22   @type tail
23   @id in_tail_minion
24   path /var/log/salt/minion
25   pos_file /var/log/fluentd-salt.pos
26   tag salt
27 <parse>
28   @type regexp
29   expression /^(?<time>[^ ]* [^ ,]*[^[]*\\[[^\\]]*\\]\\[(?<severity>[^ \\]]*) *\\] (?<message>.*)>$/i
30   time_format %Y-%m-%d %H:%M:%S
31 </parse>
32 </source>
33
```

fluentd-kubernetes-daemonse X +

← → C [github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/conf/kubernetes.conf](https://github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/conf/kubernetes.conf) ⭐

1 contributor

192 lines (175 sloc) | 4.78 KB

Raw Blame History

```
1 # AUTOMATICALLY GENERATED
2 # DO NOT EDIT THIS FILE DIRECTLY, USE /templates/conf/kubernetes.conf.erb
3
4 <match fluent.*>
5   @type null
6 </match>
7
8 <source>
9   @type tail
10  @id in_tail_container_logs
11  path /var/log/containers/*.log
12  pos_file /var/log/fluentd-containers.log.pos
13  tag kubernetes.*
14  read_from_head true
15 <parse>
16   @type "#{ENV['FLUENT_CONTAINER_TAIL_PARSER_TYPE']} || 'json'"
17   time_format %Y-%m-%dT%H:%M:%S.%NZ
18 </parse>
19 </source>
20
21 <source>
22   @type tail
23   @id in_tail_minion
24   path /var/log/salt/minion
25   pos_file /var/log/fluentd-salt.pos
26   tag salt
27 <parse>
28   @type regexp
29   expression /^(?<time>[^ ]* [^ ,]* )[^[]*\\[[^\\]]*\\]\\[(?<severity>[^ \\]]*) *\\] (?<message>.*$)/
30   time_format %Y-%m-%d %H:%M:%S
31 </parse>
32 </source>
33
```

```
fluentd-kubernetes-daemonse X +  
github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/conf/kubernetes...  
  
160      @type kubernetes  
161    </parse>  
162  </source>  
163  
164  # Example:  
165  # 2017-02-09T00:15:57.992775796Z AUDIT: id="90c73c7c-97d6-4b65-9461-f94606ff825f" ip="104.132.1.72" method="GET" user="kubecfg"  
166  # 2017-02-09T00:15:57.993528822Z AUDIT: id="90c73c7c-97d6-4b65-9461-f94606ff825f" response="200"  
167  <source>  
168    @type tail  
169    @id in_tail_kube_apiserver_audit  
170    multiline_flush_interval 5s  
171    path /var/log/kubernetes/kube-apiserver-audit.log  
172    pos_file /var/log/kube-apiserver-audit.log.pos  
173    tag kube-apiserver-audit  
174  <parse>  
175    @type multiline  
176    format_firstline /^S+\s+AUDIT:/  
177    # Fields must be explicitly captured by name to be parsed into the record.  
178    # Fields may not always be present, and order may change, so this just looks  
179    # for a list of key="\"quoted\" value" pairs separated by spaces.  
180    # Unknown fields are ignored.  
181    # Note: We can't separate query/response lines as format1/format2 because  
182    #       they don't always come one after the other for a given query.  
183    format1 /^(<time>\S+) AUDIT:(?: (?:id="(?<id>(?:[^"\"]|\\.)*")|ip="(?<ip>(?:[^"\"]|\\.)*")|method="(?<method>(?:[^"\"]|\\.)*")|time="(?<time>\S+)"|time_format %Y-%m-%dT%T.%L%Z)|filter=kubernetes.*> @type kubernetes_metadata @id filter_kube_metadata </filter> 192
```



```
fluentd-kubernetes-daemonse ✘ +  
github.com/fluent/fluentd-kubernetes-daemonset/blob/master/docker-image/v1.7/debian-elasticsearch7/conf/kubernetes...  
  
160      @type kubernetes  
161    </parse>  
162  </source>  
163  
164  # Example:  
165  # 2017-02-09T00:15:57.992775796Z AUDIT: id="90c73c7c-97d6-4b65-9461-f94606ff825f" ip="104.132.1.72" method="GET" user="kubecfg"  
166  # 2017-02-09T00:15:57.993528822Z AUDIT: id="90c73c7c-97d6-4b65-9461-f94606ff825f" response="200"  
167  <source>  
168    @type tail  
169    @id in_tail_kube_apiserver_audit  
170    multiline_flush_interval 5s  
171    path /var/log/kubernetes/kube-apiserver-audit.log  
172    pos_file /var/log/kubernetes/kube-apiserver-audit.log.pos  
173    tag kube-apiserver-audit  
174  <parse>  
175    @type multiline  
176    format_firstline /^S-\s+AUDIT:/  
177    # Fields must be explicitly captured by name to be parsed into the record.  
178    # Fields may not always be present, and order may change, so this just looks  
179    # for a list of key="\"quoted\" value" pairs separated by spaces.  
180    # Unknown fields are ignored.  
181    # Note: We can't separate query/response lines as format1/format2 because  
182    #       they don't always come one after the other for a given query.  
183    format1 /^(?<time>\S+) AUDIT:(?: (?:(?:id="(?<id>(?:[^"\"]|\\.)*")|ip="(?<ip>(?:[^"\"]|\\.)*")|method="(?<method>(?:[^"\"]|\\.)*")|time_format "%Y-%m-%dT%T.%L%Z"))  
184    time_format %Y-%m-%dT%T.%L%Z  
185  </parse>  
186  </source>  
187  
188  <filter kubernetes.*>  
189    @type kubernetes_metadata  
190    @id filter_kube_metadata  
191  </filter>  
192
```

**Logs** ❤️

# **8. Monitoring**



A screenshot of a GitHub repository page for "prometheus/prometheus".

The page title is "prometheus/prometheus: The Prometheus monitoring system and time series database." The URL is "github.com/prometheus/prometheus".

Key statistics shown:

- 7,269 commits
- 52 branches
- 0 packages
- 146 releases
- 421 contributors
- Apache-2.0 license

Branch dropdown: master. Action buttons: New pull request, Create new file, Upload files, Find file, Clone or download.

Recent commits:

Author	Commit Message	Time Ago
slrtbtfs and brian-brazil	PromQL: Use generated parser to parse label matchers (#6410)	Latest commit 3bb7150 1 hour ago
.circleci	Remove Travis as a CI platform (#6369)	10 days ago
.github	disable github actions (#6207)	last month
cmd	Add time units to storage.tsdb.retention.size flag (#6365)	5 days ago
config	config: add test case for scrape interval larger than timeout. (#6037)	2 months ago
console_libraries	Added humanizePercentage formatting to templates (#5670)	6 months ago
consoles	Update console template example metric names. (#5678)	6 months ago
discovery	discovery/kubernetes: fix client metrics	6 days ago
docs	Correct the default max block duration value	11 days ago
documentation	Simplify remote write dashboard in mixin.	17 days ago
notifier	notifier: return nil is better. (#5958)	3 months ago
pkg	Add exemplar support to the openmetrics parser (#6292)	16 days ago

Prometheus - Monitoring system

prometheus.io

Prometheus

DOCS DOWNLOAD COMMUNITY BLOG

# From metrics to insight

Power your metrics and alerting with a leading open-source monitoring solution.

[GET STARTED](#) [DOWNLOAD](#)

**Dimensional data model**  
Prometheus implements a highly dimensional data model. Time series are identified by a metric name and a set of key-value pairs.

**Powerful querying**  
PromQL allows slicing and dicing of collected time series data in order to generate ad-hoc graphs, tables, and alerts.

**Great visualization**  
Prometheus has multiple modes for visualizing data: a built-in expression browser, Grafana integration, and a console template language.

**Efficient storage**  
Prometheus stores time series in memory and on local disk in an efficient custom format. Scaling is achieved by functional sharding and federation.

**Simple operation**  
Each server is independent for

**Precise alerting**  
Alerts are defined based on

**Many client libraries**  
Client libraries allow easy

**Many integrations**  
Existing exporters allow

## Simple operation

Each server is independent for

## Precise alerting

Alerts are defined based on

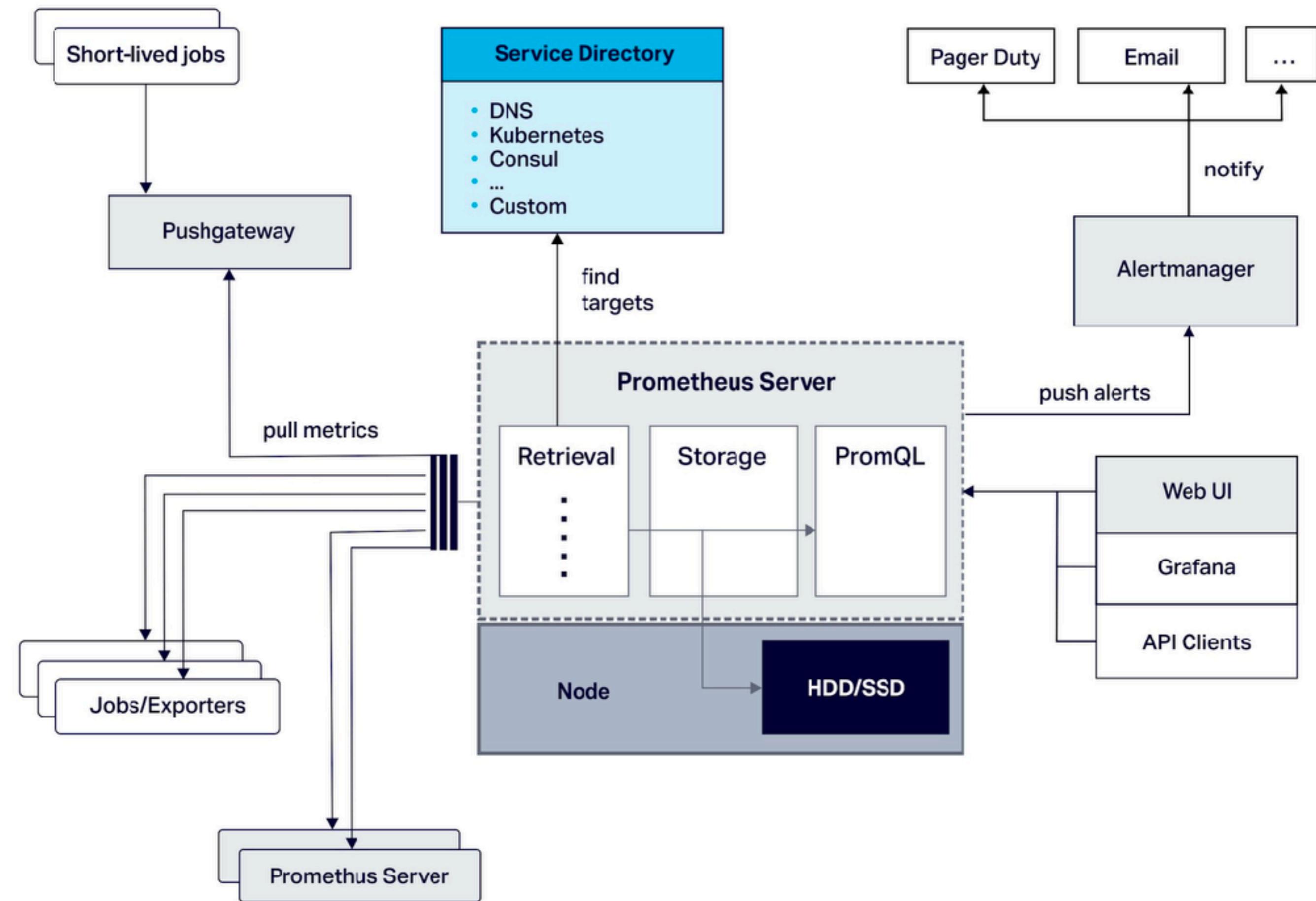
## Many client libraries

Client libraries allow easy

## Many integrations

Existing exporters allow

**Demo / практика**



Configuration | Prometheus x

prometheus.io/docs/alerting/configuration/ ☆ ≡ ...

Prometheus DOCS DOWNLOAD COMMUNITY BLOG Q Twitter icon

◀ INTRODUCTION

▲ CONCEPTS

☰ PROMETHEUS

LN VISUALIZATION

</> INSTRUMENTING

⚙️ OPERATING

⚠️ ALERTING

Alerting overview

Alertmanager

Configuration

Clients

Notification template  
reference

Notification template  
examples

# CONFIGURATION

Alertmanager is configured via command-line flags and a configuration file. While the command-line flags configure immutable system parameters, the configuration file defines inhibition rules, notification routing and notification receivers.

The [visual editor](#) can assist in building routing trees.

To view all available command-line flags, run `alertmanager -h`.

Alertmanager can reload its configuration at runtime. If the new configuration is not well-formed, the changes will not be applied and an error is logged. A configuration reload is triggered by sending a `SIGHUP` to the process or sending a HTTP POST request to the `/-/reload` endpoint.

## Configuration file

To specify which configuration file to load, use the `--config.file` flag.

```
./alertmanager --config.file=simple.yml
```

- Configuration file
- `<route>`
  - Example
- `<inhibit_rule>`
- `<http_config>`
- `<tls_config>`
- `<receiver>`
- `<email_config>`
- `<hipchat_config>`
- `<pagerduty_config>`
  - `<image_config>`
  - `<link_config>`
- `<pushover_config>`
- `<slack_config>`
  - `<action_config>`
  - `<field_config>`
- `<opsgenie_config>`
  - `<responder>`
- `<victorops_config>`
- `<webhook_config>`
- `<wechat_config>`

The file is written in the [YAML format](#), defined by the scheme described below. Brackets indicate that a parameter is optional. For non-list parameters the value is set to the specified



- [SignalFx](#): write
- [Splunk](#): read and write
- [TiKV](#): read and write
- [Thanos](#): write
- [VictoriaMetrics](#): write
- [Wavefront](#): write

## Alertmanager Webhook Receiver

For notification mechanisms not natively supported by the Alertmanager, the [webhook receiver](#) allows for integration.

- [Alertsnitch](#): saves alerts to a MySQL database
- [AWS SNS](#)
- [DingTalk](#)
- [GELF](#)
- [IRC Bot](#)
- [JIRAlert](#)
- [Phabricator / ManIFEST](#)
- [prom2teams](#): forwards notifications to Microsoft Teams
- [ServiceNow](#)
- [SMS](#): supports [multiple providers](#)
- [SNMP traps](#)
- [Telegram bot](#)
- [XMPP Bot](#)
- [Zoom](#)

## Management

Prometheus does not include configuration management functionality, allowing you to integrate it with your existing systems or build on top of it.

- [Prometheus Operator](#): Manages Prometheus on top of Kubernetes
- [Promgen](#): Web UI and configuration generator for Prometheus and Alertmanager

## Other

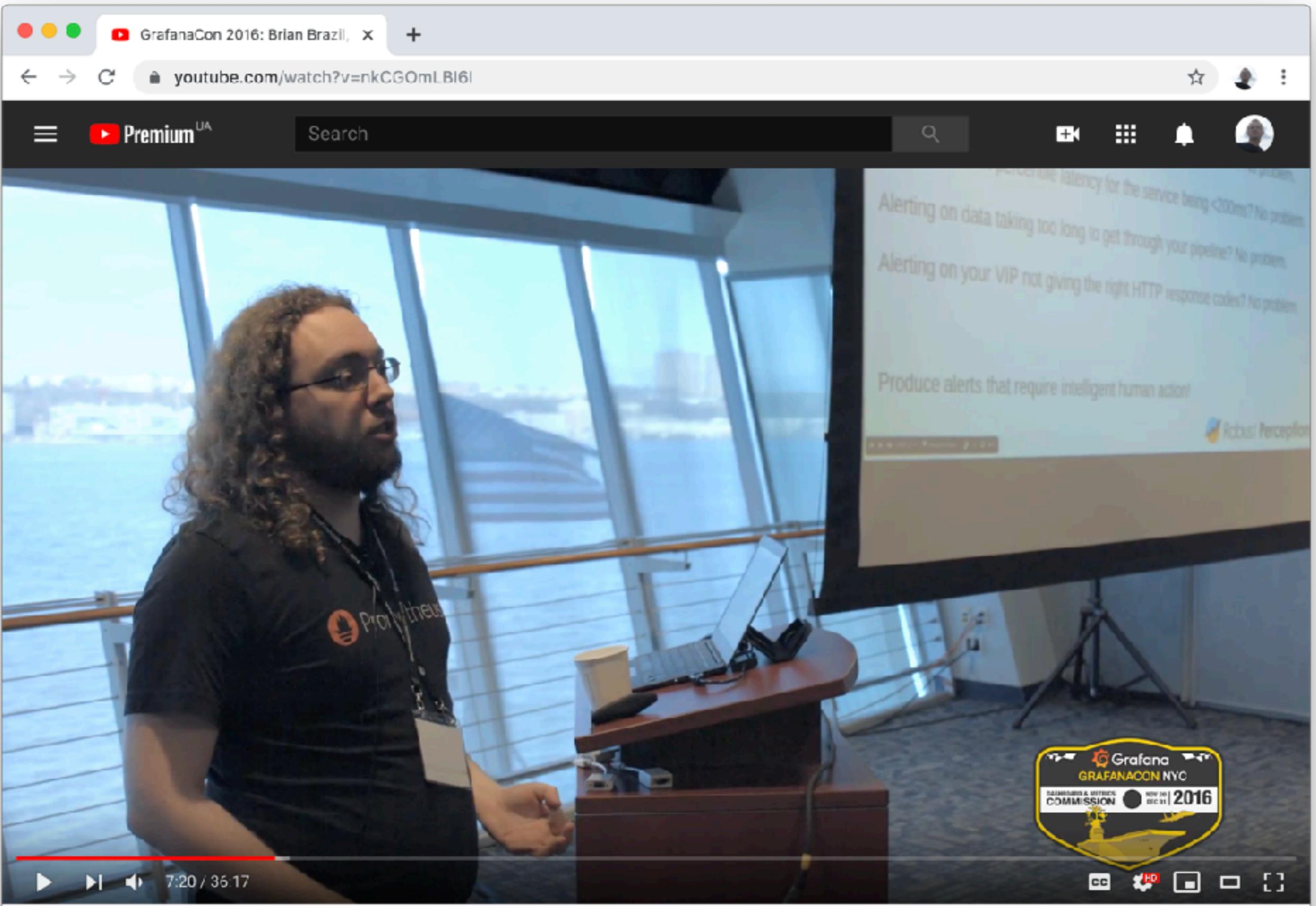
O'REILLY®



# Prometheus Up & Running

INFRASTRUCTURE AND APPLICATION PERFORMANCE MONITORING

Brian Brazil



## GrafanaCon 2016: Brian Brazil, Monitoring What Matters

2,537 views · Jan 10, 2017

1 like 21

0 dislike 0

SHARE

SAVE

...

Up next

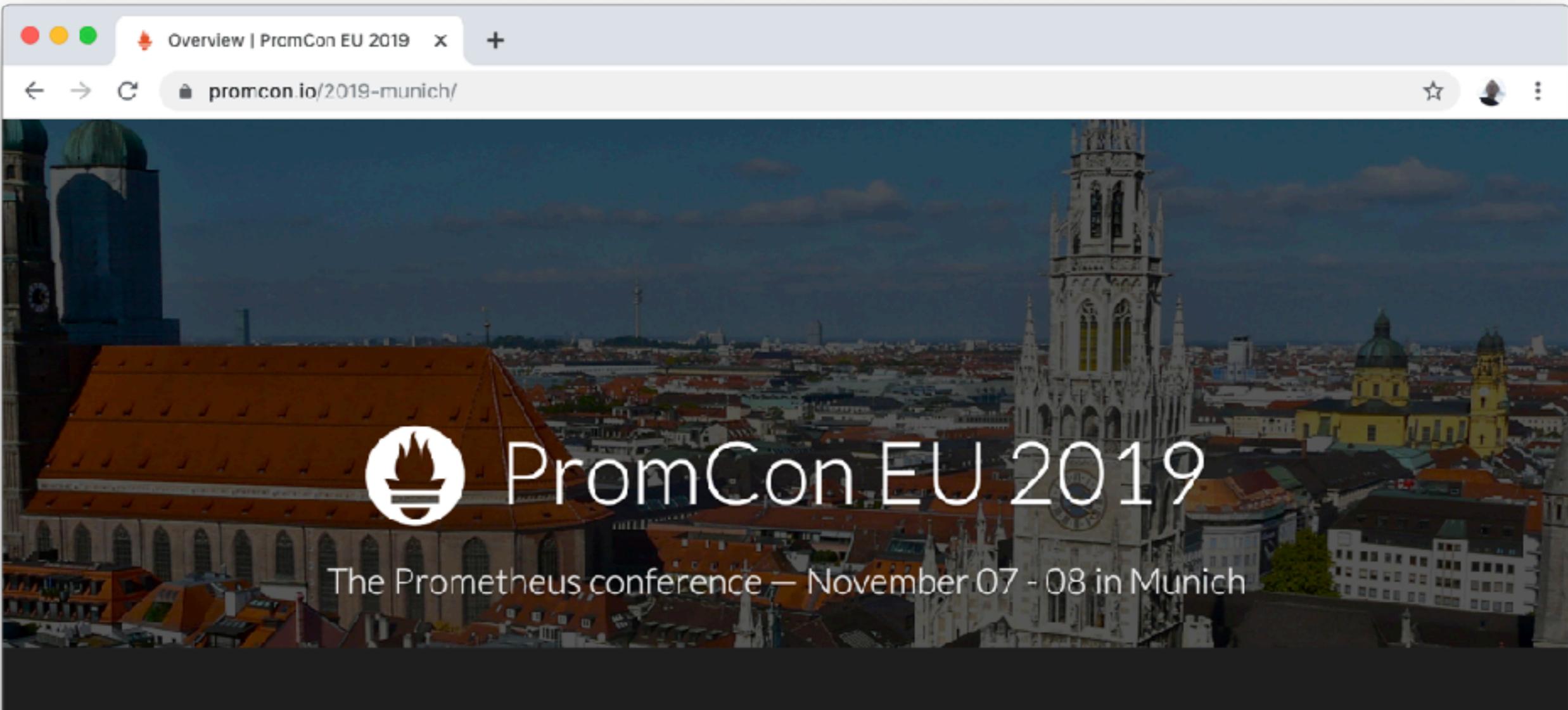


AUTOPLAY



PromCon 2016: So You Want to Write an Exporter...

Prometheus Monitoring



## Overview

PromCon EU 2019 is the fourth conference dedicated to the [Prometheus monitoring system](#). It will take place 2019-11-07 & 2019-11-08 (Thu & Fri) at Google Munich as a single-track event with space for 220 attendees.

PromCon aims to connect Prometheus users and developers from around the world in order to exchange knowledge, best practices, and experience gained around using Prometheus. We also want to collaborate to build a community and grow professional connections around systems and service monitoring.

[Get an impression of PromCon 2017!](#)

PromCon 2017 - YouTube

youtube.com/playlist?list=PL0z-W\_CUquUinvoEBbqChb7A0ZEZsWSxt

Premium UA

promcon

Home

Trending

Subscriptions

Originals

Library

 PromCon 2017  
The Prometheus Conference — August 17 - 18 in Munich

PLAY ALL

## PromCon 2017

46 videos • 21,694 views • Last updated on Sep 4, 2017

 Prometheus Monitoring

SUBSCRIBE

1 PromCon 2017: Conference Recap  
Prometheus Monitoring 3:35

2 PromCon 2017: Welcome and Introduction - Julius Volz  
Prometheus Monitoring 9:42

3 PromCon 2017: Monitoring Cloudflare's Planet-Scale Edge Network with Prometheus - Matt Brister  
Prometheus Monitoring 34:22

4 PromCon 2017: Start Your Engines: White Box Monitoring for Your Load Tests - Alexander Schwaiger  
Prometheus Monitoring 18:55

5 PromCon 2017: Best Practices and Beastly Pitfalls - Julius Volz  
Prometheus Monitoring 41:10

6 PromCon 2017: Prometheus as a (Internal) Service - Paul Traylor  
Prometheus Monitoring 26:10

7 PromCon 2017: Grafana and Prometheus - Carl Bergquist  
Prometheus Monitoring 32:07

PromCon 2018 - YouTube

youtube.com/playlist?list=PL0z-W\_CUquUiml1wBtQVBKErwoszt5B0h

Premium UA

promcon

Home

Trending

Subscriptions

Originals

Library

PromCon 2018

25 videos • 3,107 views • Last updated on Nov 22, 2018

PLAY ALL

Prometheus Monitoring

SUBSCRIBE

PromCon 2018 - Conference Recap  
Prometheus Monitoring 3:59

PromCon 2018: Welcome and Introduction  
Prometheus Monitoring 7:29

PromCon 2018: Observability and Product Release  
Prometheus Monitoring 26:09

PromCon 2018: Life of an Alert  
Prometheus Monitoring 31:04

PromCon 2018: Hidden Linux Metrics with ebpf\_exporter  
Prometheus Monitoring 29:20

PromCon 2018: Prometheus Monitoring Mixins  
Prometheus Monitoring 22:04

PromCon 2018: Autoscaling All Things Kubernetes with Prometheus  
Prometheus Monitoring 28:38

PromCon EU 2019 - Day 1 Live

youtube.com/watch?v=4vZ1PqZ\_Foc

Premium UA

promcon



# PromCon 2019

## DAY 1 Live Stream

Start at **November 7, 2019 | 09:00 (CEST)**

**Google Munich | Germany**

0:00 / 7:24:59

HD

Top chat replay

PromCon EU 2019 - Day 1 Live

2,962 views • Streamed live on Nov 7, 2019

46

0

SHARE

SAVE

...

Grafana: The open observability platform

grafana.com

Grafana Labs Grafana Products Open Source Learn Downloads Login Contact Us

# The open observability platform

Grafana is the open source analytics & monitoring solution for every database

Get Grafana Learn more

Used by thousands of companies to monitor everything from infrastructure, applications, power plants to beehives.

grafana/grafana: The tool for beautiful monitoring and metric analytics & dashboards for Graphite, InfluxDB & Prometheus & More <https://grafana.com>

Used by 6 Unwatch releases 1.2k Unstar 32.3k Fork 6.3k

Code Issues 2,245 Pull requests 118 Actions Projects 13 Wiki Security Insights

The tool for beautiful monitoring and metric analytics & dashboards for Graphite, InfluxDB & Prometheus & More <https://grafana.com>

grafana monitoring analytics metrics influxdb prometheus elasticsearch alerting data-visualization go dashboard business-intelligence mysql postgres

23,343 commits 288 branches 0 packages 178 releases 1,000 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

Commit	Message	Time Ago
 sunker	Remove false positive error message for expression and id field (#20864)	Latest commit 9d9f0e1 14 minutes ago
 .circleci	Docs: update content to work with website repo (#20693)	6 hours ago
 .github	Docs: Sync docs with website repo via GitHub Action (#20694)	yesterday
 conf	OAuth: Add missing setting from defaults.ini (#20691)	8 days ago
 contribute	Update documentation-style-guide.md (#20871)	2 hours ago
 devenv	StatPanel: ColorMode, GraphMode & JustifyMode changes (#20680)	4 days ago
 docs	fix notifications page (#20903)	2 hours ago
 emails	Emails: Update notification templates (#19662)	last month
 packages	Singlestat: Fixed unit not showing and switched to new unit picker (#...	7 hours ago
 packaging	Docker: Custom dockerfiles, docker and image rendering docs update (#...	14 days ago
 pkg	Server: Return 404 when non-pending invite is requested (#20863)	yesterday

**Demo / практика**

The OpenTracing project

opentracing.io

Apps Bookmarks Bash Причины Contractbook Auth Med JIRA Passwords Other Bookmarks

OPENTRACING DOCS GUIDES PROJECT GET INVOLVED GITHUB BLOG REGISTRY SAY HI ON GITTER

Vendor-neutral APIs and instrumentation for distributed tracing

Libraries available in 9 languages

Go, JavaScript, Java, Python, Ruby, PHP, Objective-C, C++, C#

The latest from our blog:

[OpenTracing on Kubernetes — get yer tracing for free](#)

Supported Tracers

ZIPKIN LIGHTSTEP JAEGER INSTANA

Supported Frameworks

GRPC Flask Go kit django

```
# Start Jaeger locally
$ docker run -d -p 6831:6831/udp -p 16686:16686 jaegertracing/all-in-one:latest
$ export DOCKER_IP=$(docker-machine ip $(docker-machine active))
$ cd $GOPATH/src

# Grab a simple, self-contained OpenTracing example
$ go get github.com/opentracing-contrib/examples/go
$ cd github.com/opentracing-contrib/examples/go
$ go run ./trivia.go $DOCKER_IP

# Visualize the tracing instrumentation in Jaeger by
# clicking on 'Find Traces' in the UI.
$ open http://$DOCKER_IP:16686/

# Read the source!
$ vim trivia.go
```

OpenCensus

opencensus.io

Apps Bookmarks Bash Причины Contractbook Auth Med JIRA Passwords Other Bookmarks

OpenCensus

OpenCensus and OpenTracing have merged into OpenTelemetry!

Introduction

> Quickstart

> Tracing

> Stats/Metrics

> Tags

> Exporters

> zPages

> Service

> Advanced Concepts

> Guides

Language Support

> Integrations

FAQ

Feature Matrix

Code of Conduct

> Community

Blogs



# OpenCensus

*Easily collect telemetry like metrics and distributed traces from your services*

OpenCensus and OpenTracing have merged to form [OpenTelemetry](#), which serves as the next major version of OpenCensus and OpenTracing. OpenTelemetry will offer backwards compatibility with existing OpenCensus integrations, and we will continue to make security patches to existing OpenCensus libraries for two years.

## What is OpenCensus?

OpenCensus is a set of libraries for various languages that allow you to collect application metrics and distributed traces, then transfer the data to a backend of your choice in real time. This data can be analyzed by developers and admins to understand the health of the application and debug problems.

[OVERVIEW](#)

[QUICKSTART](#)

## How can I use OpenCensus in my project?

We provide libraries for Go, Java, C#, Node.js, C++, Ruby, Erlang/Elixir, Python, Scala and PHP.

Supported backends include Azure Monitor, Datadog, Instana, Jaeger, SignalFX, Stackdriver, and Zipkin. You can also [add support for other backends](#).

OpenTracing, OpenCensus Merge X +

the new stack .io/opentracing-opencensus-merge-into-a-single-new-project-opentelemetry/

Apps Bookmarks Bash Причины Contractbook Auth Med JIRA Passwords Other Bookmarks

THE NEW STACK Ebooks ▾ Podcasts ▾ Events Newsletter

Architecture ▾ Development ▾ Operations ▾

MONITORING

# OpenTracing, OpenCensus Merge into a Single New Project, OpenTelemetry

21 May 2019 12:35am, by Joab Jackson



OpenTelemetry | Effective observability

← → C opentelemetry.io

Apps Bookmarks Bash Причины Contractbook Auth Med JIRA Passwords Other Bookmarks

About Specification Documentation Project Blog GitHub Gitter



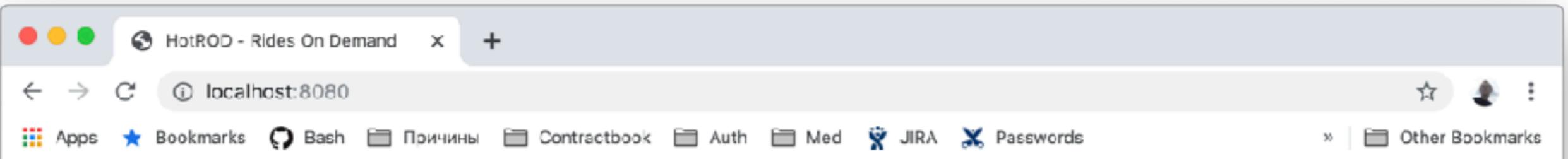
Effective observability requires high-quality telemetry

---

**OpenTelemetry** makes robust, portable telemetry a built-in feature of cloud-native software.

---

**OpenTelemetry** provides a single set of APIs, libraries, agents, and collector services to capture distributed traces and metrics from your application. You can machine them using



Your web client's id: **83**

# Hot R.O.D.

*Rides On Demand*

[Rachel's Floral Designs](#)

[Trom Chocolatier](#)

[Japanese Desserts](#)

[Amazing Coffee Roasters](#)

Click on customer name above to order a car.

HotROD **T762063C** arriving in 2min [req: 83-2, latency: 696ms]

HotROD **T736848C** arriving in 2min [req: 83-1, latency: 688ms]

Jaeger: open source, end-to-end distributed tracing

jaegertracing.io

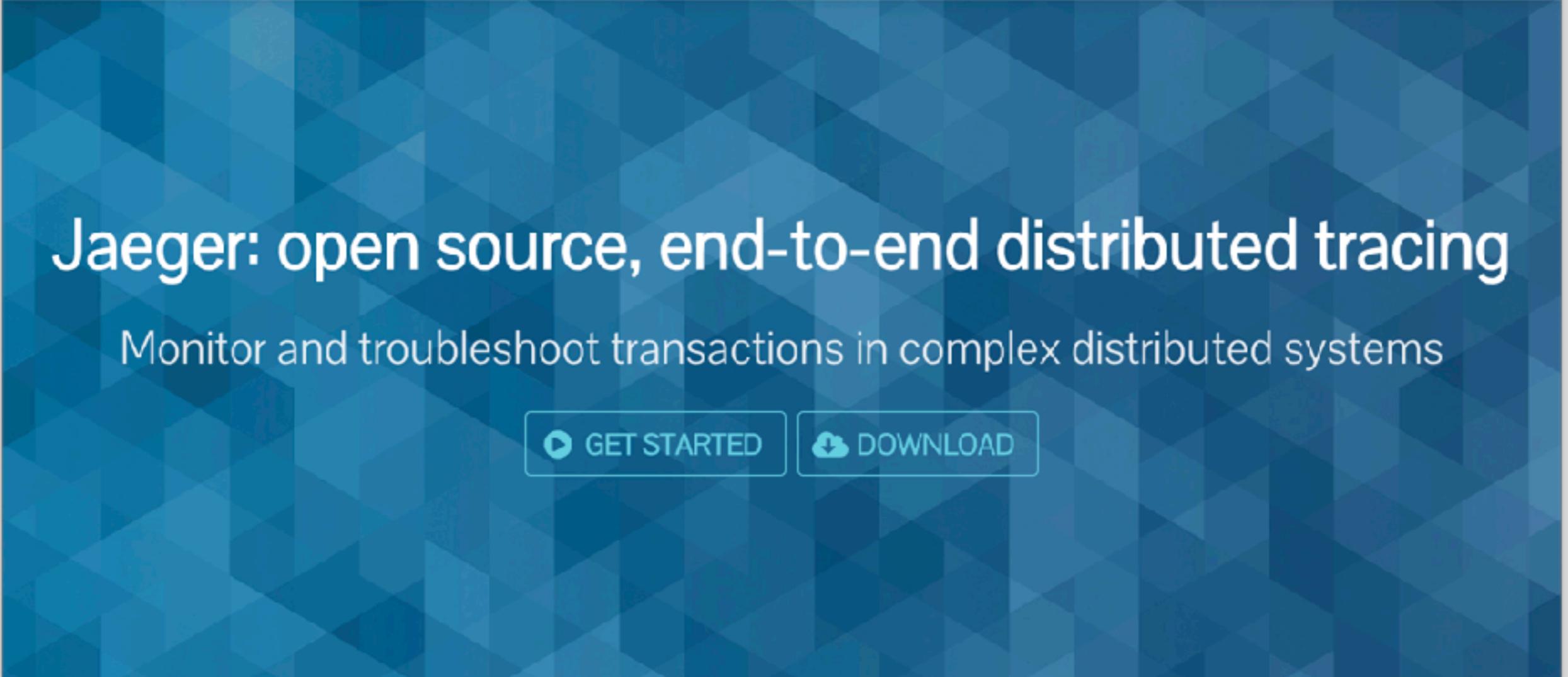
Apps Bookmarks Bash Причины Contractbook Auth Med JIRA Passwords Other Bookmarks

 JAEGER

# Jaeger: open source, end-to-end distributed tracing

Monitor and troubleshoot transactions in complex distributed systems

 GET STARTED  DOWNLOAD



## Why Jaeger?

As on-the-ground microservice practitioners are quickly realizing, the majority of operational problems that arise when moving to a distributed architecture are ultimately grounded in two areas: **networking** and **observability**.

jaegertracing/jaeger: CNCF Jaeger

github.com/jaegertracing/jaeger

Apps Bookmarks Bash Причины Contractbook Auth Med JIRA Passwords Other Bookmarks

Search or jump to... Pull requests Issues Marketplace Explore

## jaegertracing / jaeger

Watch

317

Unstar

9.7k

Fork

1k

Code

Issues 289

Pull requests 39

Actions

Projects 1

Security

Insights

CNCF Jaeger, a Distributed Tracing Platform <https://jaegertracing.io/>

distributed-tracing

opentracing

jaeger

cncf

910 commits

6 branches

0 packages

29 releases

119 contributors

Apache-2.0

Branch: master

New pull request

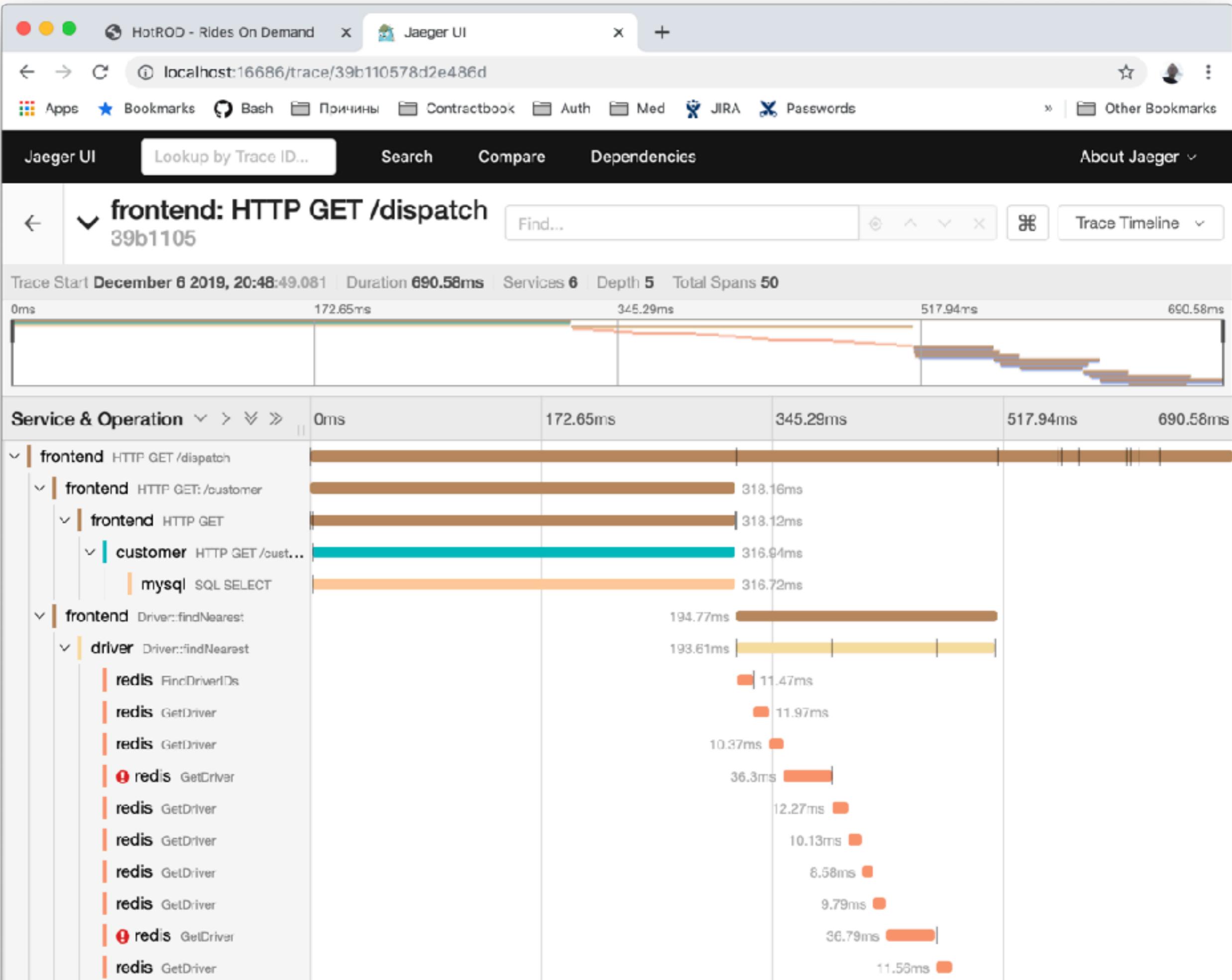
Create new file

Upload files

Find file

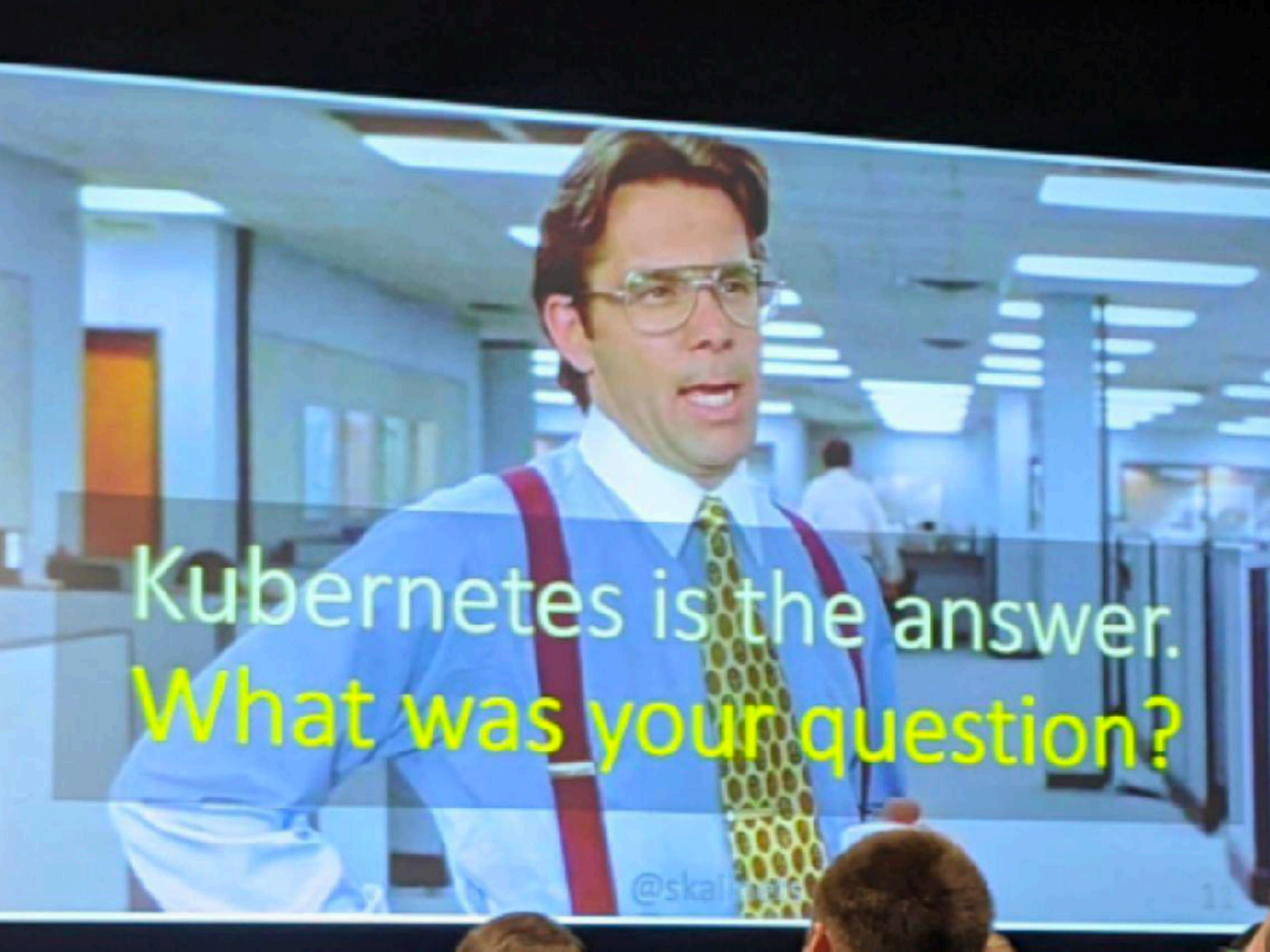
Clone or download

 pavolloffay and yurishkuro	Make rollover init step idempotent (#1964)	...	Latest commit c1bc28d yesterday
 .github	Replacing the wrong link with the correct. (#1416)		9 months ago
 cmd	Support collector tags, similar to agent tags (#1854)		yesterday
 crossdock	Use Elasticsearch 6 in xdock (#1872)		last month
 docker-compose	Make grpc reporter default and add retry (#1384)		9 months ago
 examples	Modify word spelling errors (#1815)		2 months ago
 idl @ e85e7d6	Support for Zipkin Protobuf spans over HTTP (#1695)		4 months ago
 internal/tracegen	Tracegen supports generating firehose spans (#1798)		3 months ago
 jaeger-ui @ df4c897	Preparing release 1.15.0 (#1902)		29 days ago
 model	Keep leading zeros in trace ID hex string (#1956)		2 days ago
 monitoring/jaeger-mixin	Added base Grafana dashboard and Alert rules (#1745)		4 months ago



**Monitoring** ❤

# **9. Endgame**



Kubernetes is the answer.  
What was your question?

@skal116





Stack Overflow: The Hardware - 2016 Edition

Mar 29, 2016

This is #2 in a very long series of posts on Stack Overflow's architecture.

[Previous post \(#1\): Stack Overflow: The Architecture - 2016 Edition](#)

Next post (#3): [Stack Overflow: How We Do Deployment - 2016 Edition](#)

Who loves hardware? Well, I do and this is my blog so I win. If you *don't* love hardware then I'd go ahead and close the browser.

Still here? Awesome. Or your browser is crazy slow, in which case you should think about some new hardware.

I've repeated many, *many* times: **performance is a feature**. Since your code is only as fast as the hardware it runs on, the hardware definitely matters. Just like any other platform, Stack Overflow's architecture comes in layers. Hardware is the foundation layer for us, and having it in-house affords us many luxuries not available in other scenarios...like running on someone else's servers. It also comes with direct and indirect costs. But that's not the point of this post, [that comparison will come later](#). For now, I want to provide a detailed inventory of our infrastructure for reference and comparison purposes. And pictures of servers. Sometimes naked servers. This web page could have loaded much faster, but I couldn't help myself.

In many posts through this series I will give a lot of numbers and specs. When I say "our SQL server utilization is almost always at 5–10% CPU," well, that's great. But, 5–10% *of what?* That's when we need a point of reference. This hardware list is meant to both answer those questions and serve as a source for comparison when looking at other platforms and what utilization may look like there, how much capacity to compare to, etc.

## How We Do Hardware

Disclaimer: I don't do this alone. George Beech ([@GABeech](#)) is my main partner in crime when spec'ing hardware here at Stack. We carefully spec out each server for its intended purpose. What we don't do is order in bulk and assign tasks later. We're not alone in this process though; you have to know what's going to run on the hardware to spec it optimally. We'll work with the developer(s) and/or other

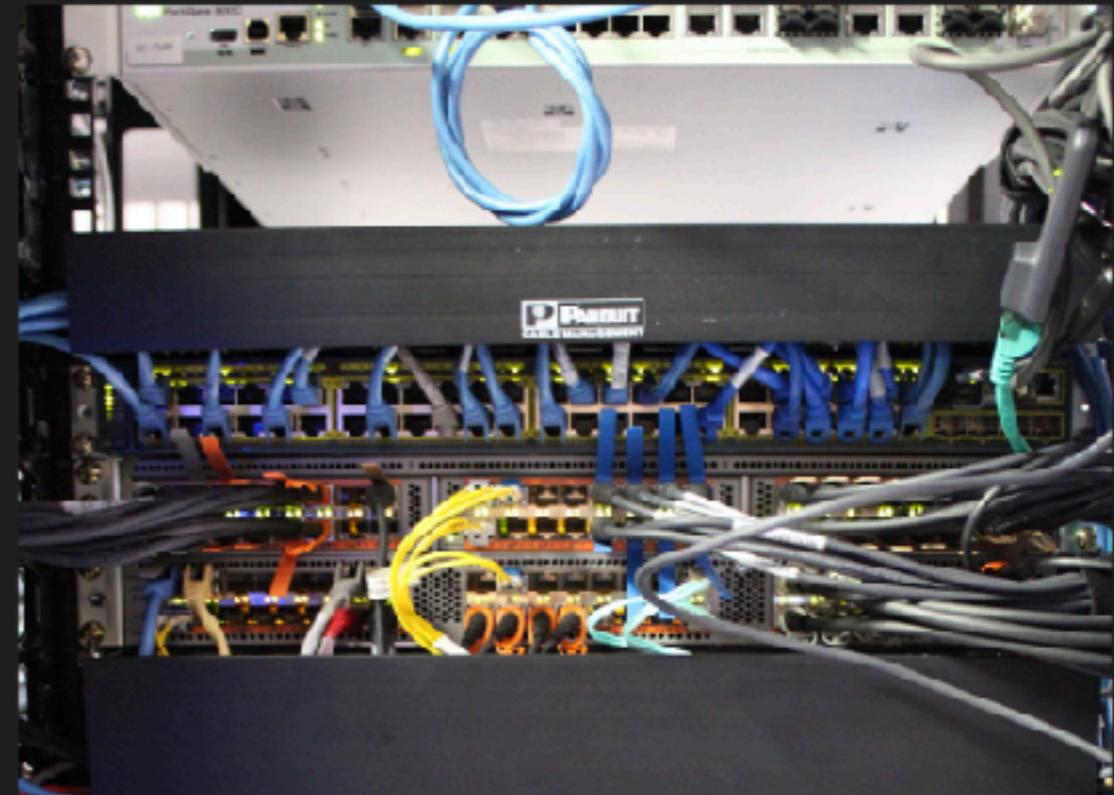
Nick Craver - Stack Overflow: 1 X

nickcraver.com/blog/2016/03/29/stack-overflow-the-hardware-2016-edition/

- 2x Cisco Nexus 5596UP core switches (96 SFP+ ports each at 10 Gbps)
- 10x Cisco Nexus 2232TM Fabric Extenders (2 per rack - each has 32 BASE-T ports each at 10Gbps + 8 SFP+ 10Gbps uplinks)
- 2x Fortinet 800C Firewalls
- 2x Cisco ASR-1001 Routers
- 2x Cisco ASR-1001-x Routers
- 6x Cisco 2960S-48TS-L Management network switches (1 Per Rack - 48 1Gbps ports + 4 SFP 1Gbps)
- 1x Dell DMPU4032 KVM
- 7x Dell DAV2216 KVM Aggregators (1-2 per rack - each uplinks to the DPMU4032)

*Note: Each FEX has 80 Gbps of uplink bandwidth to its core, and the cores have a 160 Gbps port channel between them. Due to being a more recent install, the hardware in our Denver data center is slightly newer. All 4 routers are ASR-1001-x models and the 2 cores are Cisco Nexus 56128P, which have 96 SFP+ 10Gbps ports and 8 QSFP+ 40Gbps ports each. This saves 10Gbps ports for future expansion since we can bond the cores with 4x 40Gbps links, instead of eating 16x 10Gbps ports as we do in New York.*

Here's what the network gear looks like in New York:



## SQL Servers (Stack Exchange "...and everything else" Cluster)

- 2 Dell R730xd Servers, each with:
- Dual E5-2667v3 Processors (8 cores @3.2–3.6GHz each)
- 768 GB of RAM (24x 32 GB DIMMs)
- 3x Intel P3700 2 TB NVMe PCIe SSD (RAID 0)
- 24x 10K Spinny 1.2 TB SATA HDDs (RAID 10)
- Dual 10 Gbps network (Intel X540/I350 NDC)

*Note: Denver SQL hardware is identical in spec, but there is only 1 SQL server for each corresponding pair in New York.*

Here's what the SQL Servers in New York looked like while getting their PCIe SSD upgrades in February:





## VM Servers (VMWare, Currently)

- 2 Dell [FX2s](#) Blade Chassis, each with 2 of 4 blades populated
  - 4 Dell [FC630](#) Blade Servers (2 per chassis), each with:
    - Dual [E5-2698 v3](#) Processors (16 cores @ 2.3–3.6GHz each)
    - 768 GB of RAM (24x 32 GB DIMMs)
    - 2x 16GB SD Cards (Hypervisor - no local storage)
  - Dual 4x 10 Gbps network (FX IOAs - BASET)
- 1 EqualLogic [PS6210X](#) iSCSI SAN
  - 24x Dell 10K RPM 1.2TB SAS HDDs (RAID10)
  - Dual 10Gb network (10-BASET)
- 1 EqualLogic [PS6110X](#) iSCSI SAN
  - 24x Dell 10K RPM 900GB SAS HDDs (RAID10)
  - Dual 10Gb network (SFP+)

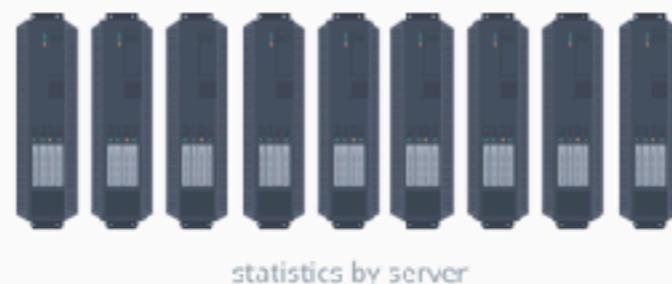




## 9 WEB SERVERS

RAM: 64GB

300 req /s  
Peak: 450 req /s



5 %  
CPU usage  
Peak: 12%

## 4 SQL SERVERS

Organized as 2 clusters

### Stack Overflow

RAM: 1.5 TB • DB size: 2.8 TB

4 %  
CPU usage  
Peak: 15%



528 M  
queries /day

PEAK  
11000  
queries /s

### Stack Exchange, Careers, Meta

RAM: 768 GB • DB size: 3.9 TB

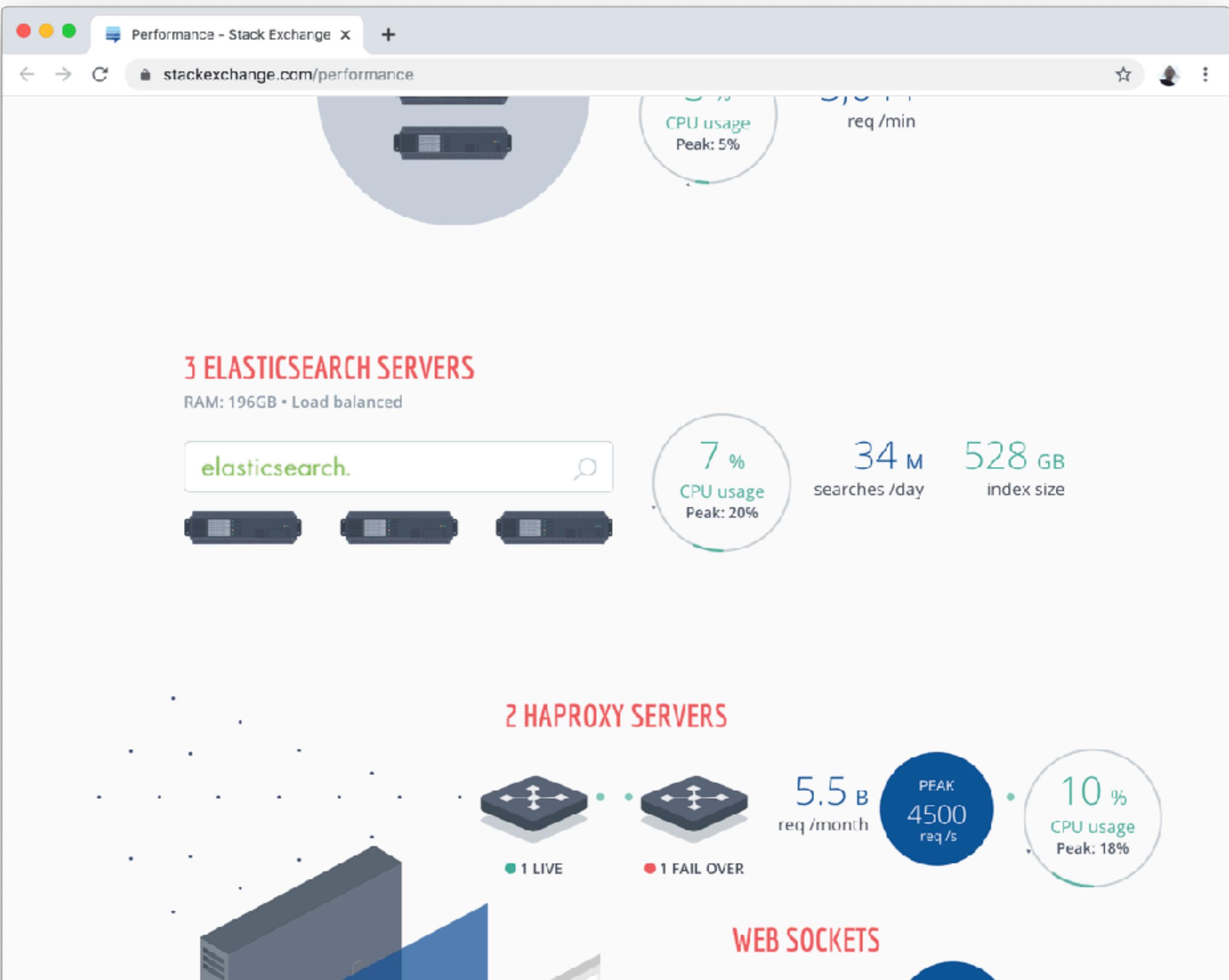


6 %  
CPU usage  
Peak: 14%

496 M  
queries /day

PEAK  
12800  
queries /s





Telegram (7)

← 6 Kubernetes — русскоговорящее сообщество  
4,078 members

Pinned message  
Друзья, месяц завершается, фотографии готовятся и уже скоро будут опубликованы в...

Dmitry Stolyarov

Let Eat Bee

Как вы чистите регистри, мы написали внутренний чистиль...

Чистить можно все, что не используется. Значит проще всего ответить на обратный вопрос – что сохранять? И ответ следующий:

1. Сохранять все то, что в headах гита (как минимум в последнем комите любого из бранчей, с тегами имеет смысл настраивать срок жизни).
2. Сохранять нужно все то, что сейчас выкачено в кубе (или в кубах). Нужно сканировать deployment/replikaset/pod/statefulset/... и находить актуальные релизы. Там же лежат и "последние N релизов", что может быть полезно для ролбека.
3. Имеет смысл сохранять все то, что собрано в последние N часов (скажем 24 часа). Могут быть комит-реверт-комит, чтобы быстро собиралось.

Вот это и сделали. 15:35

Подробнее в видео <https://www.youtube.com/watch?v=cK3ackGUTLw> и в доке [https://werf.io/documentation/reference/cleaning\\_process.html](https://werf.io/documentation/reference/cleaning_process.html).

YouTube

werf — наш инструмент для CI/CD в Kubernetes (Дмитрий Столяров, Флант, DevOpsConf 2019)  
Доклад технического директора компании «Флант» (<https://flant.ru/>) Дмитрия Столярова на конференции DevOp...

1 15:36

Write a message...

Telegram (?)

Docker — русскоговорящее сообщество  
4,408 members

Pinned message  
Всем привет! С разрешения администрации чата, хочу пригласить всех на комьюнит...

| Несколько десятков. И маков, и хаков

R Окей, у него железо 2009, на него вообще каталина должна прилетать? Я вот хз 18:40

Eduard Generalov  
rmshell 🎉  
Окей, у него железо 2...

ур 18:40

Alex 🎉  
rmshell 🎉  
Окей, у него железо 2009, на него вообще ката...  
Нет. Это делается копанием в дистрибутиве 18:41

Eduard Generalov  
core2duo штоль? 18:41

R Но он говорит что парале может в a10x64 18:41

Alex 🎉  
Benin Benino  
На уровне самой ос  
Ты как Каталину тудаставил? 18:41

Benin Benino  
rmshell 🎉  
Окей, у него железо 2009, на него ...  
Нет не у меня даже маxаве нет 18:41

Alex I. joined the group

Andrey Dmitriyev  
Привет ребят, как разделить сертификаты отдельно для каждого из доменов (domen.ru, domen.kz)?  
Сертификаты на руках. Если это важно, nginx запущен в докер контейнере. В текущем варианте серты указаны только для первого домена. Как разделить и указать для второго тоже?

JOIN GROUP



Expert Certification - Cloud Na X +

cncf.io/certification/cka/

KubeCon + CloudNativeCon Amsterdam | March 30 – April 2 | Best Pricing Ends February 2 | [Learn more](#)

 CLOUD NATIVE COMPUTING FOUNDATION

About ▾ Projects ▾ Certification ▾ People ▾ Community ▾ Newsroom ▾ [JOIN NOW](#) 

# Certified Kubernetes Administrator (CKA) Program

The [Certified Kubernetes Administrator \(CKA\)](#) program was created by the Cloud Native Computing Foundation (CNCF), in collaboration with The Linux Foundation, to help develop the Kubernetes ecosystem. As one of the highest velocity open source projects, Kubernetes use is exploding.

The Cloud Native Computing Foundation is committed to growing the community of Kubernetes Administrators, thereby allowing continued growth across the broad set of companies and organizations that are using Kubernetes. Certification is a key step in that process, allowing certified administrators to quickly establish their credibility and value in the job market, and also allowing companies to more quickly hire high-quality teams to support their growth.

**Cost \$300 | Online Exam**



[REGISTER FOR THE EXAM](#)

 shurup 10 октября 2018 в 10:40

# Как мы сдавали экзамен Certified Kubernetes Administrator

Блог компании Флант, Системное администрирование, Учебный процесс в IT, DevOps, Kubernetes



В прошлом году у организации CNCF (Cloud Native Computing Foundation), помогающей развиваться таким Open Source-проектам, как Kubernetes и Prometheus, появилась программа сертификации СКА (Certified Kubernetes Administrator). В начале этого лета мы решили в ней поучаствовать и [получили](#) первые сертификаты для своих сотрудников. О

## ИНФОРМАЦИЯ

Дата основания	13 мая 2008 г.
Локация	Москва
	Россия
Сайт	<a href="http://flant.ru">flant.ru</a>
Численность	51–100 человек
Дата регистрации	25 января 2017 г.
Представитель	Дмитрий Шуру...

## ВИДЖЕТ



Certified Kubernetes Administrator X +

udemy.com/course/certified-kubernetes-administrator-with-practice-tests/

Udemy Categories Search for anything My Courses Cart User profile

IT & Software > IT Certification > Kubernetes

 Gift This Course  Wishlist

# Certified Kubernetes Administrator (CKA) with Practice Tests

Prepare for the Certified Kubernetes Administrators Certification with live practice tests right in your browser - CKA

BESTSELLER ★★★★★ 4.7 (3,997 ratings) 20,574 students enrolled

Created by Mumshad Mannambeth Last updated 12/2019

English English



Preview this course

**\$9.99** \$199.99  
95% off  
4 hours left at this price!

Add to cart

## What you'll learn

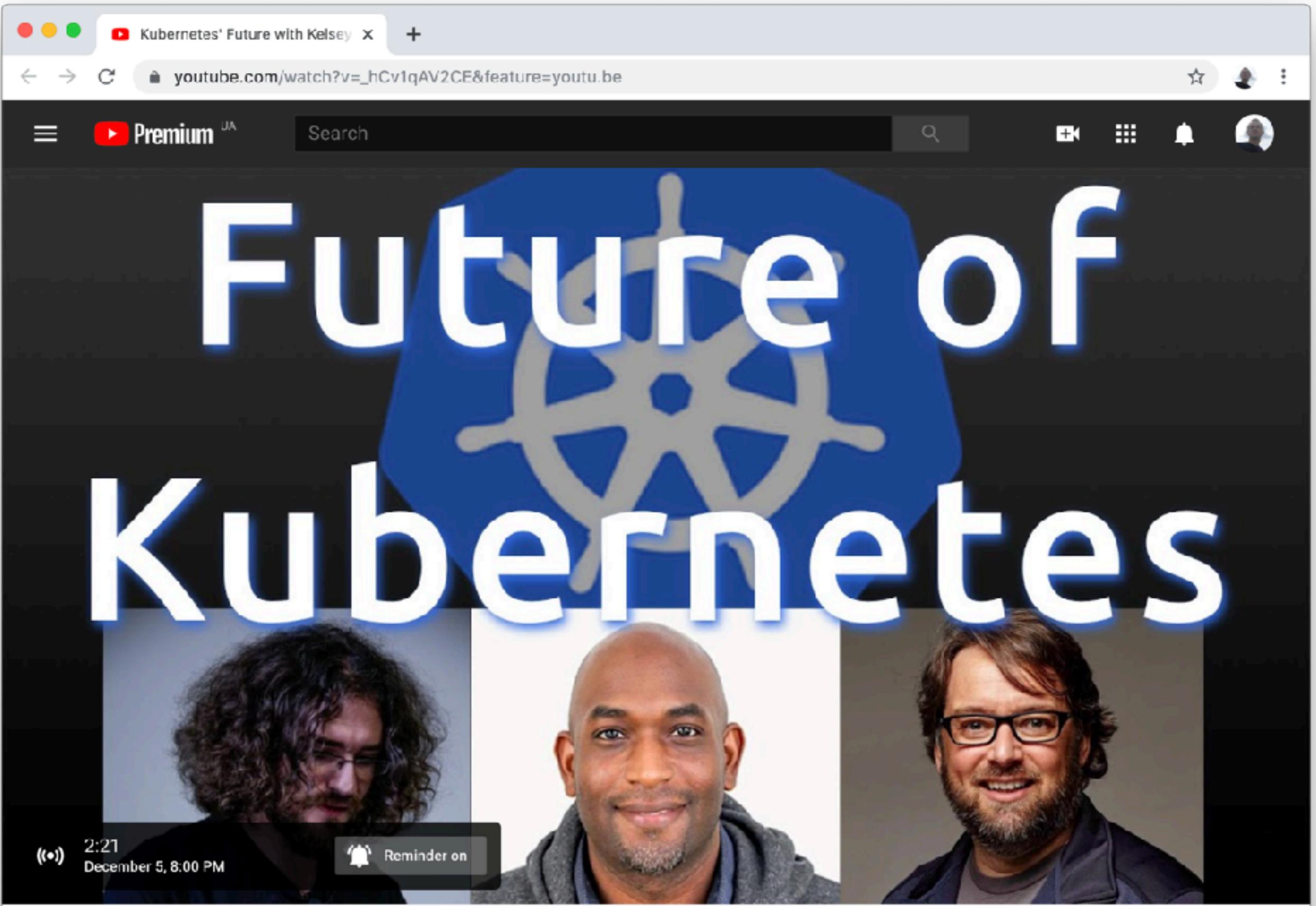
- ✓ How to Administer a Kubernetes Cluster
- ✓ How to Build a Kubernetes Cluster from scratch - "The Hard Way"
- ✓ How to Troubleshoot a Kubernetes Cluster
- ✓ How to Configure Storage on a Kubernetes Cluster
- ✓ How to Design a Kubernetes Cluster
- ✓ How to Test a Kubernetes Cluster end-to-end
- ✓ How to Secure a Kubernetes Cluster
- ✓ How to Configure Network on a Kubernetes Cluster

Buy now

30-Day Money-Back Guarantee

This course includes

- 12 hours on-demand video
- 101 articles
- 12 downloadable resources
- Full lifetime access
- Access on mobile and TV



#Kubernetes #DevOps #Docker

Kubernetes' Future with Kelsey Hightower and Jérôme Petazzoni: DevOps and Docker Show (Ep 65)

40 waiting - Scheduled for Dec 5, 2019

15

0

SHARE

SAVE

...

Top chat ▾



Bret Fisher Docker and DevOps

Starting in  
10 minutes!

Bringing Pokémon GO to life on X +

← → C cloud.google.com/blog/products/gcp/bringing-pokémon-go-to-life-on-google-cloud ⋮

Google Cloud [Get started for free](#)

Blog Latest Stories Product News Topics

GOOGLE CLOUD PLATFORM

# Bringing Pokémon GO to life on Google Cloud

Luke Stone  
Director of Customer Reliability Engineering

September 29, 2015

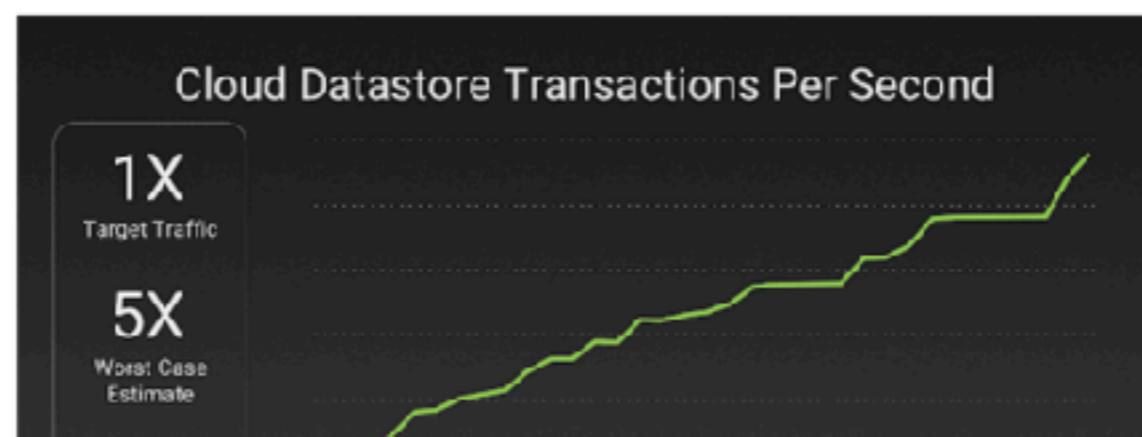
Try GCP

Get \$300 free credit to spend over 12 months.

FREE TRIAL

Throughout my career as an engineer, I've had a hand in numerous product launches that grew to millions of users. User adoption typically happens gradually over several months, with new features and architectural changes scheduled over relatively long periods of time. Never have I taken part in anything close to the growth that [Google Cloud](#) customer [Niantic](#) experienced with the launch of Pokémon GO.

As a teaser, I'll start with a picture worth a thousand words:



Kubernetes at GitHub - The GitHub Blog

github.blog/2017-08-16-kubernetes-at-github/

Back to GitHub.com



August 16, 2017 — Engineering

# Kubernetes at GitHub



Jesse Newland

Over the last year, GitHub has gradually evolved the infrastructure that runs the Ruby on Rails application responsible for [github.com](#) and [api.github.com](#). We reached a big milestone recently: all web and API requests are served by containers running in [Kubernetes](#) clusters deployed on our [metal cloud](#). Moving a critical application to Kubernetes was a fun challenge, and we're excited to share some of what we've learned with you today.

Share

Twitter

Facebook

## Why change?

Before this move, our main Ruby on Rails application (we call it `github/github`) was configured a lot like it was eight years ago: [Unicorn](#) processes managed by a Ruby process manager called [God](#) running on Puppet-managed servers. Similarly, our



high load and/or high rates of container churn, some of our Kubernetes nodes will kernel panic and reboot. While we're not satisfied with this situation and are continuing to investigate it with high priority, we're happy that Kubernetes is able to route around these failures automatically and continue serving traffic within our target error bounds. We've performed a handful of failure tests that simulated kernel panics with `echo c > /proc/sysrq-trigger` and have found this to be a useful addition to our failure testing patterns.

## What's next?

---

We're inspired by our experience migrating this application to Kubernetes, and are looking forward to migrating more soon. While scope of our first migration was intentionally limited to stateless workloads, we're excited about experimenting with patterns for running stateful services on Kubernetes.

During the last phase of this project, we also shipped a workflow for deploying new applications and services into a similar group of Kubernetes clusters. Over the last several months, engineers have already deployed dozens of applications to this cluster. Each of these applications would have previously required configuration management and provisioning support from SREs. With a self-service application provisioning workflow in place, SRE can devote more of our time to delivering infrastructure products to the rest of the engineering organization in support of our best practices, building toward a faster and more resilient GitHub experience for everyone.

## Thanks

---

We'd like to extend our deep thanks to the entire Kubernetes team for their software, words, and guidance along the way. I'd also like to thank the following GitHubbers for their incredible work on this project: @samlambert, @jssjr, @keithduncan, @jbarnette, @sophaskins, @aaronbbrown, @rhettg, @bbaasata, and @gamefiend.

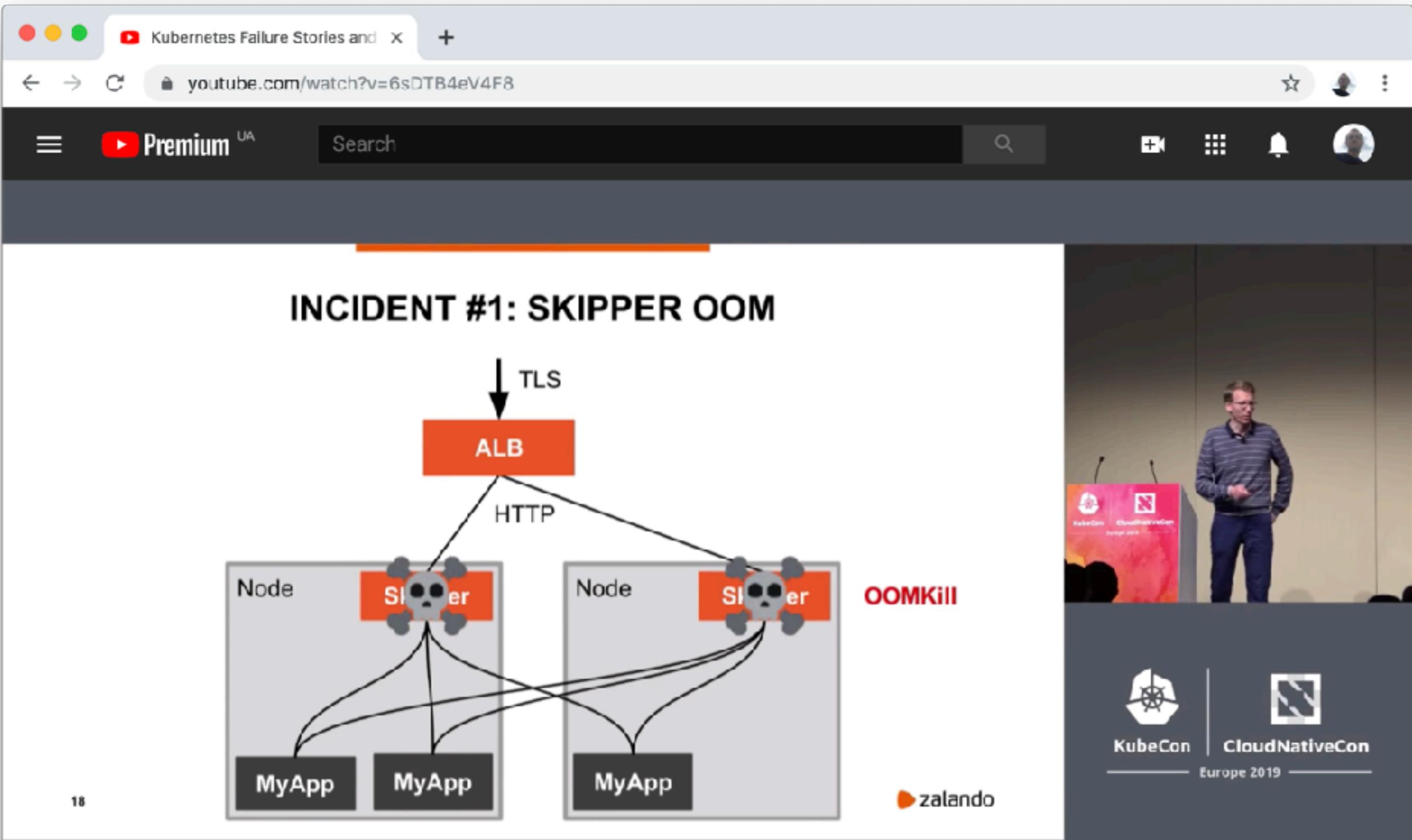
**Come work with us!**



# Kubernetes Failure Stories

A compiled list of links to public failure stories related to Kubernetes. Most recent publications on top.

- [Postmortem: New K8s workers unable to join cluster - FREE NOW - postmortem 2019](#)
  - involved: AWS spot instances, kops, CentOS, container-selinux
  - impact: insufficient cluster capacity in testing environments, failed deployments in production and staging environments
- [How a simple admission webhook lead to a cluster outage - Jetstack - blog post 2019](#)
  - involved: ValidatingWebhookConfiguration, GKE node auto-repair
  - impact: prolonged downtime of non-prod environment, nodes lost, failed master upgrade
- [Post Mortem: Kubernetes Node OOM - Blue Matador - blog post 2019](#)
  - involved: AWS, SystemOOM, EBS, fluentd-sumologic, no resource requests/limits
  - impact: unknown, Pods killed
- [Kubernetes' dirty endpoint secret and Ingress - Ravelin - blog post 2019](#)
  - involved: GKE, Ingress, replication controller, SIGTERM, "graceful shutdown"
  - impact: occasional 502 errors
- [How a Production Outage Was Caused Using Kubernetes Pod Priorities - Grafana Labs 2019](#)
  - involved: Pod priorities
  - impact: cascading Pod evictions
- [Moving to Kubernetes: the Bad and the Ugly - Xing - ContainerDays EU 2019](#)
  - involved: nginx Ingress, network interrupts, conntrack, frozen CronJob, PLEG, stuck controllers
  - impact: lost requests, response time jumps, not ready nodes
- [Kubernetes Failure Stories, or: How to Crash Your Cluster - Zalando - ContainerDays EU 2019](#)
  - involved: AWS IAM, Kubelet, `--kube-api-qps`, Skipper-Ingress, AWS, `oomkill`, CronJob, CoreDNS, CPU throttling
  - impact: build errors, production outages
- [Build Errors of Continuous Delivery Platform - Zalando - postmortem 2019](#)



4:41 / 29:26

Videos brought to you by: Google Cloud

AUTOPLAY

Kubernetes Failure Stories and How to Crash Your Clusters - Henning Jacobs,  
Zalando SE

5,136 views • May 22, 2019

90

0

SHARE

SAVE

Up next



Keynote: How Spotify  
Accidentally Deleted All i...  
CNCF [Cloud Native Compu...

# **Полезные ресурсы**

Kubernetes - Visual Studio Marketplace

marketplace.visualstudio.com/items?itemName=ms-kubernetes-tools.vscode-kubernetes-tools

VisualStudio | Marketplace

Sign in

Visual Studio Code > Snippets > Kubernetes

New to Visual Studio?



## Kubernetes

Microsoft | 302,091 installs | ★★★★★ (17) | Free

Develop, deploy and debug Kubernetes applications

[Install](#) [Trouble Installing?](#)

Overview Q & A Rating & Review

### Visual Studio Code Kubernetes Tools

build passing

The extension for developers building applications to run in Kubernetes clusters and for DevOps staff troubleshooting Kubernetes applications.

Works with any Kubernetes anywhere (Azure, Minikube, AWS, GCP and more!).

Features include:

- View your clusters in an explorer tree view, and drill into workloads, services, pods and nodes.
- Browse Helm repos and install charts into your Kubernetes cluster.
- Intellisense for Kubernetes resources and Helm charts and templates.
- Edit Kubernetes resource manifests and apply them to your cluster.
- Build and run containers in your cluster from Dockerfiles in your project.
- View diffs of a resource's current state against the resource manifest in your Git repo
- Easily check out the Git commit corresponding to a deployed application.
- Run commands or start a shell within your application's pods.

Categories

Snippets Linters Debuggers Other Azure

Tags

aks aws debuggers gke helm helm-tools ignore keybindings kubernetes snippet

Resources

Repository License Changelog Download Extension

Project Details

Azure/vscode-kubernetes-tools 98 Open Issues

TGI Kubernetes - YouTube

youtube.com/playlist?list=PL7bmigfV0EqQzxNpmcdTJ9eFRPBe-iZa

Premium UA

Search

Home

Trending

Subscriptions

Originals

Library

**TGI Kubernetes**

Ep 094

Fridays at 1pm pacific

PLAY ALL

94 videos • 5,312 views • Updated 2 days ago

VMware Cloud Native Apps

SUBSCRIBE

**TGI Kubernetes 094**  
VMware Cloud Native Apps •  
Scheduled for 10/18/19, 11:00 PM

**TGI Kubernetes 093: Grokking Kubernetes - Controller Manager**  
VMware Cloud Native Apps

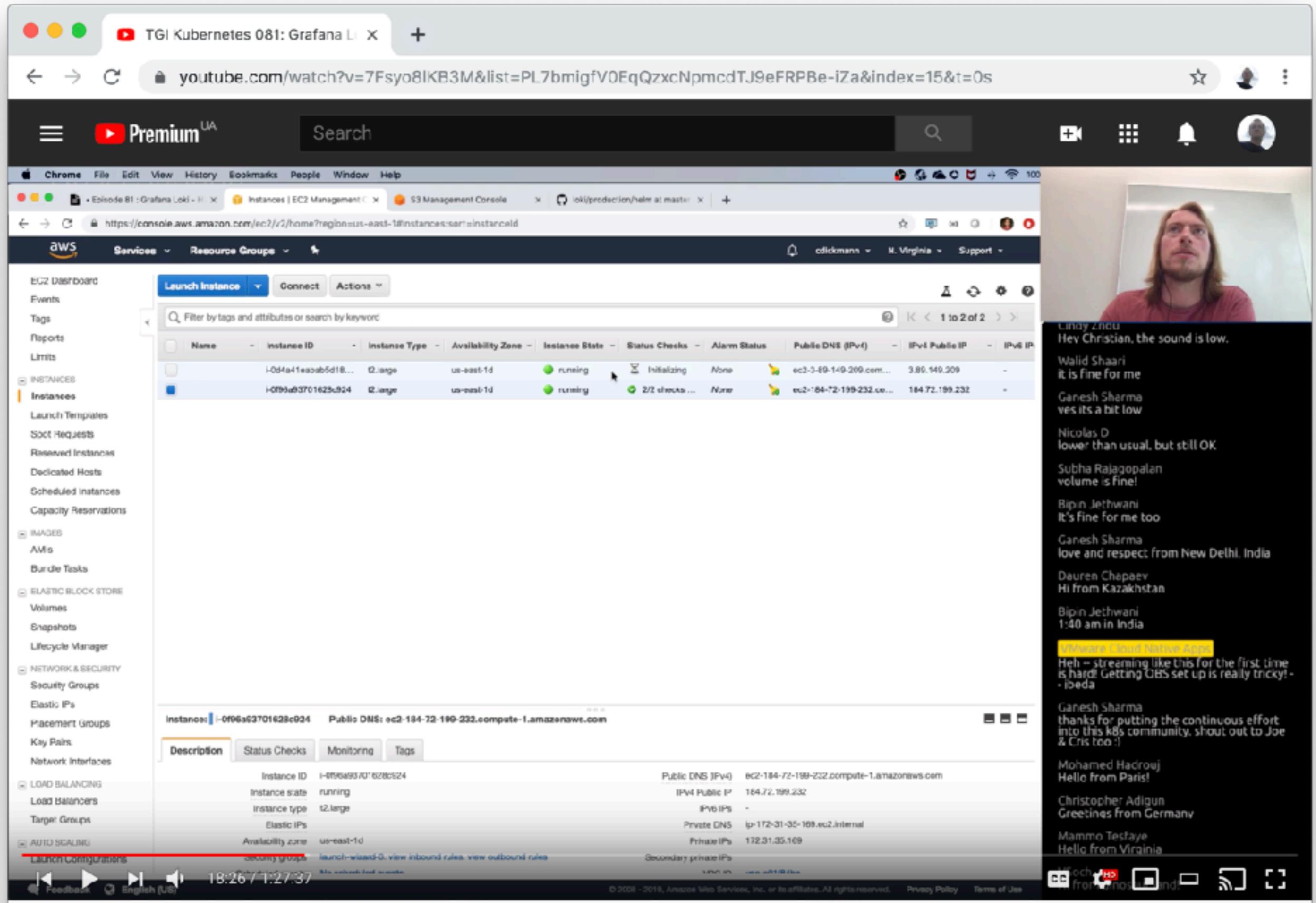
**TGI Kubernetes 092: Continuing Minecraft Controller**  
VMware Cloud Native Apps

**TGI Kubernetes 091: kpack**  
VMware Cloud Native Apps

**TGI Kubernetes 090: Grokking Kubernetes - kube-proxy**  
VMware Cloud Native Apps

**TGI Kubernetes 089: Tekton Pipelines**  
VMware Cloud Native Apps

**TGI Kubernetes 088: Falco with Kris**  
VMware Cloud Native Apps



TGI Kubernetes 081: Grafana Loki

1,388 views · Streamed live on Jun 28, 2019

24

414

SHARE

三+ SAVE

3

Top chat replay ▾

 Walid Shaari It Is fine for me

TGI Kubernetes 041: Traefik

<https://docs.traefik.io/user-guide/kubernetes/>

**Kubernetes**

**Check the Pods**

Now lets check if our command was successful.

Start by listing the pods in the `kube-system` namespace:

```
kubectl --namespace=kube-system get pods
```

NAME	READY	STATUS	RESTARTS	AGE
<code>kube-addon-manager-minikube</code>	1/1	Running	0	4h
<code>kubernetes-dashboard-88k7j</code>	1/1	Running	0	4h
<code>traefik-ingress-controller-67f226159-eqseu</code>	1/1	Running	0	7m

You should see that after submitting the Deployment or DaemonSet to Kubernetes it has launched a Pod, and it is now running. It might take a few moments for Kubernetes to pull the Traefik image and start the container.

**Note**

You could also check the deployment with the Kubernetes dashboard, run `minikube dashboard` to open it in your browser, then choose the `kube-system` namespace from the menu at the top right of the screen.

You should now be able to access Traefik on port 80 of your Minikube instance when using the DaemonSet:

```
curl $(minikube ip)
```

404 page not found

If you decided to use the deployment, then you need to target the correct NodePort, which can be seen when you execute `kubectl get services --namespace=kube-system`.

```
curl $(minikube ip):<NODEPORT>
```

404 page not found

**Table of contents**

- Prerequisites
- Role-Based Access Control configuration (Kubernetes 1.6+ only)
- Deploy Traefik using a Deployment or DaemonSet
- Check the Pods
- Deploy Traefik using Helm chart
- Submitting an Ingress to the Cluster
- Add a TLS Certificate to the Ingress
- Basic Authentication
- Creating the Secret
- Name-based Routing
- Path based Routing
- Specifying Routing Priorities
- Forwarding to ExternalNames
- Disable passing the Host Header
- Disable globally
- Disable per Ingress
- Partitioning the Ingress object space
- Between Traefik and other Ingress controller implementations
- Between multiple Traefik Deployments
- Production advice
- Resource limitations

**Thanks!**

Leonardo Gonçalves da Silva  
@Kris any tips to start to learn Go lang?

Sean Smith  
can we leave our CFP in mailbox peak for you 😊

Mark Wolfe  
Hello from Australia

Heptio  
<https://www.heptio.com/cfp/SANI-PDF.pdf>

Sean Smith  
oooo i didn't know about `os貌似 dot space`

Fernando Battistella  
damn... that looks cool 😊

Leonardo Gonçalves da Silva  
Nice!

Leonardo Gonçalves da Silva  
@Kris Thank you so much

Aaron Peschel  
One annoying thing with Let's Encrypt is that you can really easily get rate limited for a week on issuing certificates.

Aaron Peschel  
You get like 5 requests per week, I think?

Nolan Reisbeck  
It's 20/wk

Nolan Reisbeck  
5 re-issuances

Elrick R  
Hey everyone, howdy from Boston.

Sean Smith  
cc not HD that they change it but they do it once and it stays changed

## TGI Kubernetes 041: Traefik

3,235 views · Streamed live on Jul 6, 2018

48

6

SHARE

SAVE

Top chat replay ▾



Engin Dumlu good to see you in one piece

The screenshot shows a video player interface with a terminal window overlaid. The video title is "TGI Kubernetes 019: Prometheus". The terminal window displays a shell script named "run-tunnel.sh" with the following content:

```
SSH_KEY=~/.ssh/id_rsa
ssh -i $SSH_KEY -A \
-L30900:localhost:30900 \
-L30903:localhost:30903 \
-L30902:localhost:30902 \
-D ProxyCommand="ssh -i \"${SSH_KEY}\" %t ubuntu@54.201.246.23 -nc %t %p" ubuntu@10.8.13.49
```

The terminal also shows a file browser on the left and a list of commits at the bottom. A video player controls bar at the bottom indicates the video is at 47:27 / 1:44:18.

TGI Kubernetes 019: Prometheus as a noob

5,272 views · Streamed live on Dec 22, 2017

11 67

410

► SHAR

**SAVE**

3

TGI Kubernetes

VMware Cloud Native Apps - 76 / 94

Флант - YouTube

youtube.com/channel/UCjmwHCZ-qh3ro7hHTQhqYQg/videos

Premium UA

Search

Home

Trending

Subscriptions

Originals

Library

Флант

3.07K subscribers

SUBSCRIBED

Сайт h Twitter f

HOME VIDEOS PLAYLISTS COMMUNITY CHANNELS ABOUT

Uploads PLAY ALL SORT BY

Управление распределенной командой в режиме многопроектности

Сергей Гончару 37:28

werf – наш инструмент для CI/CD в Kubernetes

Дмитрий Столп 45:32

Автомасштабирование и управление ресурсами в Kubernetes

Дмитрий Столп 44:08

Performance Review и выявление тайного знания

Игорь Цапик 50:23

Управление распределенной командо...

794 views • 2 weeks ago

werf – наш инструмент для CI/CD в Kubernetes...

2.5K views • 2 months ago

Автомасштабирование и управление ресурсами в...

3K views • 3 months ago

Performance Review и выявление тайного знани...

1.5K views • 4 months ago

werf – наш инструмент для CI/CD в Kubernetes

Антон Соколов, Илья Михеев, Андрей Колесников 4:31

Расширяем и дополняем Kubernetes

Дмитрий Столп (Флант) 48:09

Базы данных и Kubernetes

Дмитрий Столп (Флант) 55:27

49:20

Наш опыт с Kubernetes в небольших проектах

Дмитрий Столяров

13:43 / 59:24

Up next

AUTOPLAY

45,394 views · Jun 20, 2017

1.5K 19 SHARE SAVE ...

RC RootConf

# RootConf

## Главный паттерн деплоя

- 1 Старая версия работает
- 2 Новая версия "прогревается"
- 3 Переключили трафик
- 4 Старая версия остановлена

RC

ФЛАНТ

RootConf



Мониторинг и Kubernetes  
(Дмитрий Столяров,...)

Базы данных и Kubernetes (Дмитрий Столяров, Флант) youtube.com/watch?v=VnegrHj53pW4

Premium UA Search

Базы данных и Kubernetes  
Дмитрий Столяров (Флант)

HL HighLoad++ 2018

## Как оно было раньше?

The diagram illustrates a traditional architecture for handling database requests. It shows two DB boxes (each with a crown icon and 'keepalive' button) connected to an IP box. The IP box has a butterfly icon and is connected to a Balancer box. The Balancer box is connected to multiple App boxes, which are then connected to a user icon.

HighLoad++

QIWI ORATOR MAIL.RU CLOUD SOLUTIONS PIXONIC VIRGIL SECURITY NVIDIA GlobalDots itsumma ORACLE Aletheia Business

10:48 / 55:26

Базы данных и Kubernetes (Дмитрий Столяров, Флант, HighLoad++ 2018)

4,983 views · Dec 5, 2018

182

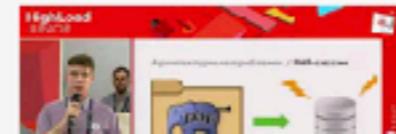
3

SHARE

SAVE

Up next

AUTOPLAY



ТОП ошибок в  
инфраструктуре,...  
HighLoad Channel

community/sig-list.md at master · kubernetes/community · GitHub

Search or jump to... / Pull requests Issues Marketplace Explore

kubernetes / community Watch 616 Star 5.2k Fork 2.3k

Code Issues 158 Pull requests 35 Actions Projects 0 Security Insights

Branch: master community / sig-list.md Find file Copy path

AevaOnline Add myself to the CoCC 3b0d330 7 days ago

160 contributors

82 lines (66 sloc) 28 KB Raw Blame History

## SIGs and Working Groups

Most community activity is organized into Special Interest Groups (SIGs), time bounded Working Groups, and the [community meeting](#).

SIGs follow these [guidelines](#) although each of these groups may operate a little differently depending on their needs and workflow.

Each group's material is in its subdirectory in this project.

When the need arises, a new [SIG can be created](#)

### Master SIG List

Name	Label	Chairs	Contact	Mee
------	-------	--------	---------	-----

			* <a href="#">Jonn Belamaric</a> , Google	<a href="#">LIST</a>	
Auth	auth		* <a href="#">Mo Khan</a> , Red Hat * <a href="#">Mike Danese</a> , Google * <a href="#">Tim Allclair</a> , Google	* <a href="#">Slack</a> * <a href="#">Mailing List</a>	* Regular SIG Meeting: <a href="#">Wednesdays at 11:00 PT</a>
Autoscaling	autoscaling		* <a href="#">Marcin Wielgus</a> , Google	* <a href="#">Slack</a> * <a href="#">Mailing List</a>	* Regular SIG Meeting: <a href="#">Mondays at 14:00 UTC (18:00 UTC)</a>
CLI	cli		* <a href="#">Sean Sullivan</a> , Google * <a href="#">Maciej Szulik</a> , Red Hat	* <a href="#">Slack</a> * <a href="#">Mailing List</a>	* Regular SIG Meeting: <a href="#">Wednesdays at 09:00 PT</a>
Cloud Provider	cloud-provider		* <a href="#">Andrew Sy Kim</a> , VMware * <a href="#">Walter Fender</a> , Google	* <a href="#">Slack</a> * <a href="#">Mailing List</a>	* Regular SIG Meeting: <a href="#">Wednesdays at 1:00 PT (14:00 UTC)</a> * (cloud-provider-extraction-migration) Weekly @cheftako and @mcrute: <a href="#">Thursdays at 13:30 PT</a> * (provider-aws) Regular AWS Subproject Meeting <a href="#">2019 start date: Jan. 11th</a> * (provider-azure) Azure Subproject Meeting (First Friday of every month) * (provider-azure) Azure Subproject Meeting (Third Friday of every month) * (provider-gcp) Regular GCP Subproject Meeting * (provider-ibmcloud) Regular IBM Subproject Meeting * (provider-openstack) Regular OpenStack Subproject Meeting (biweekly starting Wednesday March 20th)

	<a href="#">Cluster Lifecycle</a>	cluster-lifecycle	<ul style="list-style-type: none"> <li>* <a href="#">Justin Santa Barbara</a>, Google</li> <li>* <a href="#">Timothy St. Clair</a>, VMware</li> </ul>	<ul style="list-style-type: none"> <li>* <a href="#">Slack</a></li> <li>*</li> <li><a href="#">Mailing List</a></li> </ul>	<ul style="list-style-type: none"> <li>* Cluster Addons meeting: <a href="#">Tuesdays at 09:00 PT</a></li> <li>* Image Builder office hours: <a href="#">Wednesdays at 11:00 UTC</a></li> <li>* Kubespray Office Hours: <a href="#">Wednesdays at 08:00 UTC</a></li> <li>* Regular SIG Meeting: <a href="#">Tuesdays at 09:00 PT (Pacific Time)</a></li> <li>* Regular SIG Meeting in China: <a href="#">Tuesdays at 20:00 UTC</a></li> <li>* etcdadm Office Hours: <a href="#">Mondays at 09:00 PT (Pacific Time)</a></li> <li>* kops Office Hours: <a href="#">Fridays at 09:00 PT (Pacific Time)</a></li> <li>* kubeadm Office Hours: <a href="#">Wednesdays at 09:00 UTC</a></li> <li>* minikube Office Hours: <a href="#">Mondays at 11:00 PT (Pacific Time)</a></li> <li>* (cluster-api-provider-azure) Cluster API Azure (bi-weekly)</li> <li>* (cluster-api-provider-vsphere) Cluster API vSphere (Pacific Time) (bi-weekly)</li> </ul>
	<a href="#">Contributor Experience</a>	contributor-experience	<ul style="list-style-type: none"> <li>* <a href="#">Elsie Phillips</a>, Red Hat</li> <li>* <a href="#">Paris Pittman</a>, Google</li> </ul>	<ul style="list-style-type: none"> <li>* <a href="#">Slack</a></li> <li>*</li> <li><a href="#">Mailing List</a></li> </ul>	<ul style="list-style-type: none"> <li>* Regular SIG Meeting: <a href="#">Wednesdays at 9:30 PT</a></li> <li>* (community-management) APAC Coordinator</li> <li>* (contributors-documentation) Non-Code Content (Pacific Time) (biweekly)</li> <li>* (events) Events Planning Subproject: <a href="#">Mondays at 17:00 UTC</a></li> </ul>
	<a href="#">Docs</a>	docs	<ul style="list-style-type: none"> <li>* <a href="#">Jennifer Rondeau</a>, Stripe</li> <li>* <a href="#">Jim Angel</a>, General Motors</li> <li>* <a href="#">Zach Corleissen</a>, Linux Foundation</li> </ul>	<ul style="list-style-type: none"> <li>* <a href="#">Slack</a></li> <li>*</li> <li><a href="#">Mailing List</a></li> </ul>	<ul style="list-style-type: none"> <li>* APAC SIG Meeting: <a href="#">Wednesdays at 02:00 UTC</a></li> <li>* Korean Team Meeting: <a href="#">Thursdays at 13:00 UTC</a></li> <li>* Regular SIG Meeting: <a href="#">Tuesdays at 17:30 UTC (Pacific Time)</a></li> </ul>
	<a href="#">Instrumentation</a>	instrumentation	<ul style="list-style-type: none"> <li>* <a href="#">Frederic Branczyk</a>, Red Hat</li> </ul>	<ul style="list-style-type: none"> <li>* <a href="#">Slack</a></li> <li>*</li> </ul>	<ul style="list-style-type: none"> <li>* Regular SIG Meeting: <a href="#">Thursdays at 17:30 UTC (Pacific Time)</a></li> </ul>

kubernetes/kubernetes: Production-grade container scheduling and management

github.com/kubernetes/kubernetes

Search or jump to... / Pull requests Issues Marketplace Explore

Unwatch releases 3k Unstar 59k Fork 20.7k

Code Issues 2,275 Pull requests 1,023 Actions Projects 9 Security Insights

Production-Grade Container Scheduling and Management <https://kubernetes.io>

kubernetes go cnf containers

84,392 commits 39 branches 0 packages 573 releases 2,319 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

Commit	Message	Time Ago
	k8s-ci-robot Merge pull request #84073 from draveness/feature/cleanup-framework-pl...	Latest commit 4222561 4 hours ago
	.github Merge pull request #83049 from obitech/update_pr_template_release_not...	17 days ago
	Codeps Update munnerz/goautoneg dependency	8 days ago
	api Merge pull request #83195 from wojtek-t/watch_bookmarks_ga	21 hours ago
	build Merge pull request #83944 from openSUSE/cri-tools-windows	2 days ago
	cluster Merge pull request #81345 from k-toyoda-pi/fix_shellcheck_validate-cl...	yesterday
	cmd Prune inactive owners from cmd/kube-controller-manager/OWNERS.	yesterday
	docs Updated OWNERS files to include link to docs	9 months ago
	hack Merge pull request #84055 from odinuge/cherry_pick_indent	7 hours ago
	logo Correct URL	6 months ago
	pkg Merge pull request #84073 from draveness/feature/cleanup-framework-pl...	4 hours ago
	plugin Merge pull request #81940 from carlory/fix-appserver	8 days ago

Directory Layout · The Kubectl X +

kubectl.docs.kubernetes.io/pages/app\_composition\_and\_deployment/structure\_directories.html



Type to search

BACKGROUND INFORMATION

- Introduction
- Getting Started with Kubectl
- Resources + Controllers Overview

APP MANAGEMENT

- Introduction
- Apply
- Secrets and ConfigMaps
- Container Images
- Namespaces and Names
- Labels and Annotations
- Field Merge Semantics

RESOURCE PRINTING

- Summaries
- Raw

A YAML button is visible in the top right corner.

Providing Feedback

Provide feedback at the [survey](#)

Experimental

**Content in this chapter is experimental and will evolve based on user feedback.**

Leave feedback on the conventions by creating an issue in the [kubectl GitHub repository](#).  
Also provide feedback on new kubectl docs at the [survey](#)

TL;DR

- Use **directory hierarchy to structure Resource Config**
  - Separate directories for separate Environment and Cluster [Config Variants](#)

# Directory Structure Based Layout

## Motivation

Which is right for my organization?

While this chapter is focused on conventions when using Directories, Branches and  
Branches should be used with Directories as needed.

Directory Layout · The Kubectl X +

kubectl.docs.kubernetes.io/pages/app\_composition\_and\_deployment/structure\_directories.html

YAML

Type to search

BACKGROUND INFORMATION

- Introduction
- Getting Started with Kubectl
- Resources + Controllers Overview

APP MANAGEMENT

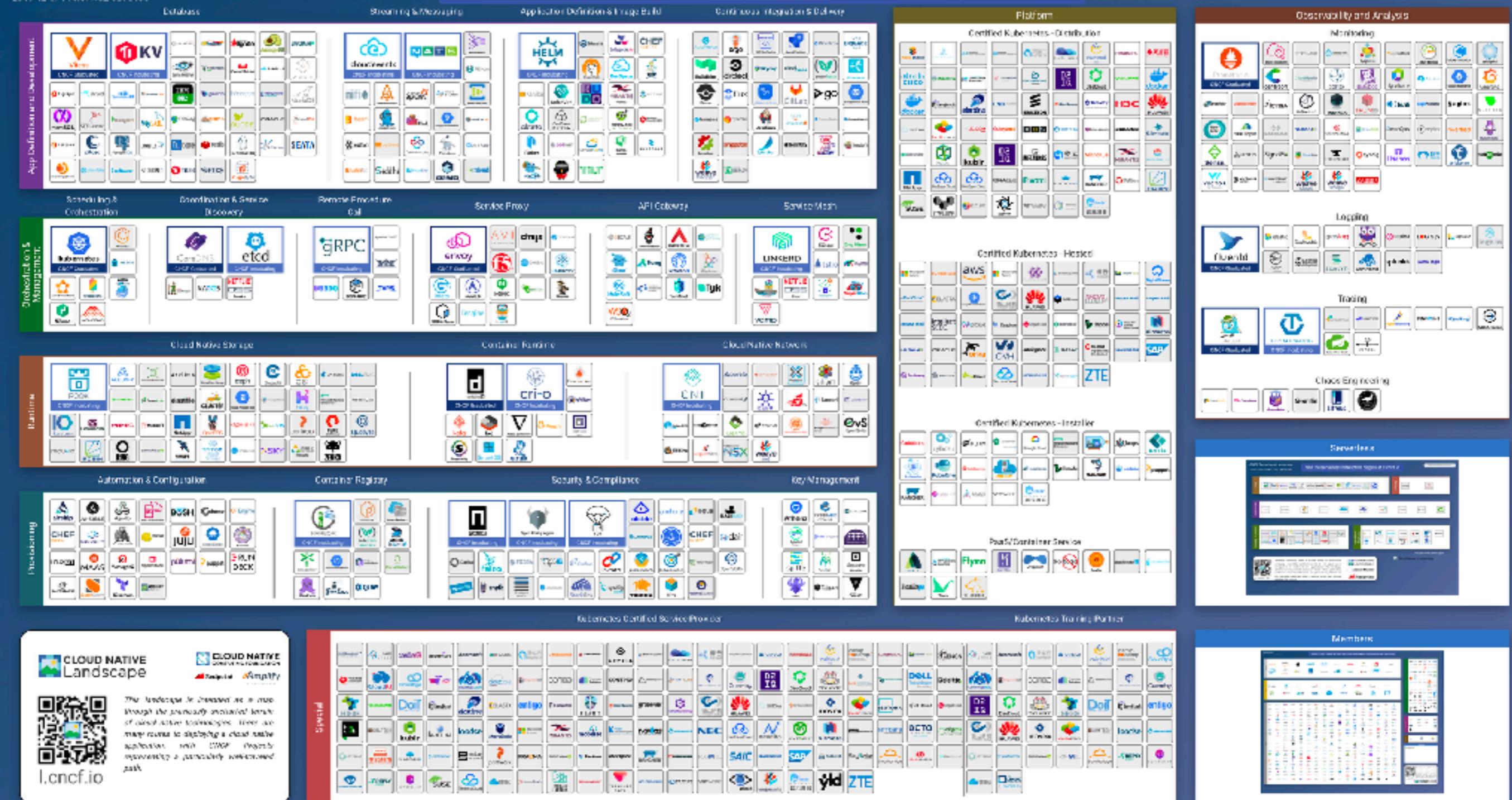
- Introduction
- Apply
- Secrets and ConfigMaps
- Container Images
- Namespaces and Names
- Labels and Annotations
- Field Merge Semantics

RESOURCE PRINTING

- Summaries
- Raw

Techniques:

- Each Layer adds a `namePrefix` and `commonLabels`.
- Each Layer adds labels and annotations.
- Each deployable target sets a `namespace`.
- Override `Pod Environment Variables and Arguments` using `configMapGenerator`s with `behavior: merge`.
- Perform Last-mile customizations with `patches / overlays`



# CNCF Cloud Native Landscape

2019-12-07T14:47:48Z 6876186

Overwhelmed? Please s

App Definition and Development

Database

Streaming & Messaging

Application Definition



Scheduling & Orchestration

Coordination & Service Discovery

Remote Procedure Call

Service Proxy

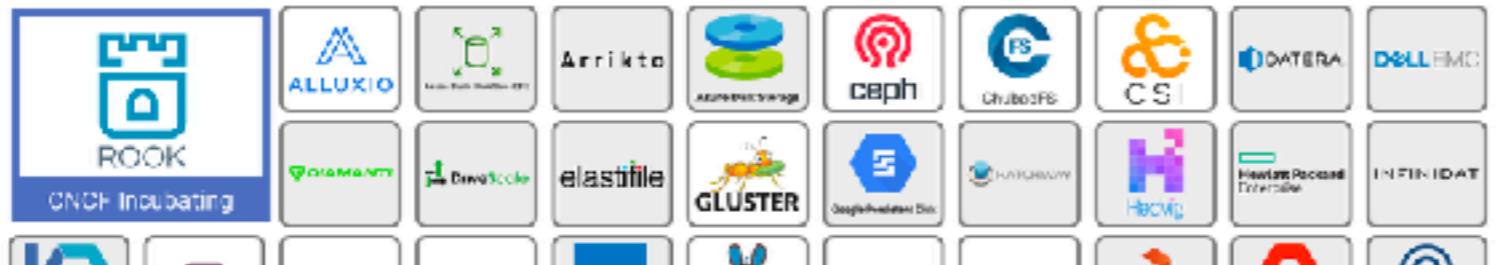
Orchestration & Management



Cloud Native Storage

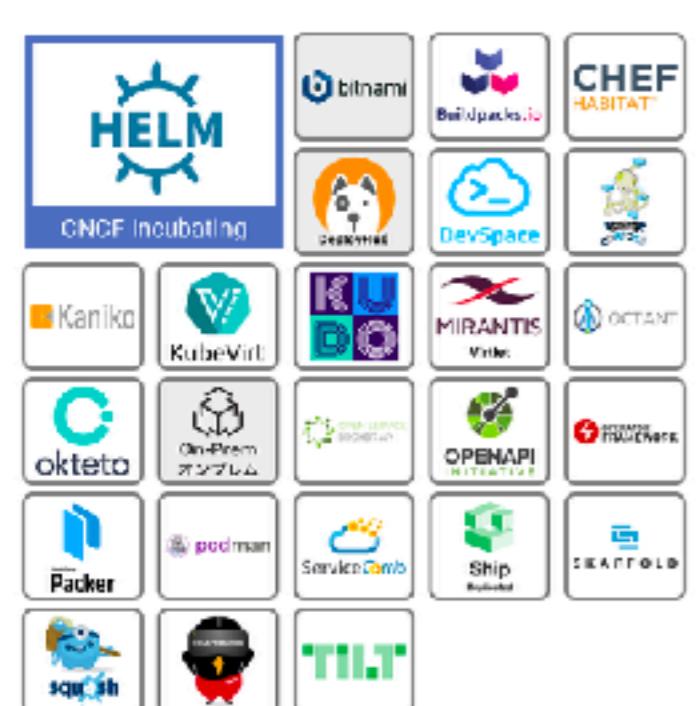
Container Runtime

Container Runtime



lmed? Please see the CNCF Trail Map. That and the interactive landscape are at [l.cncf.io](https://landscape.cncf.io)

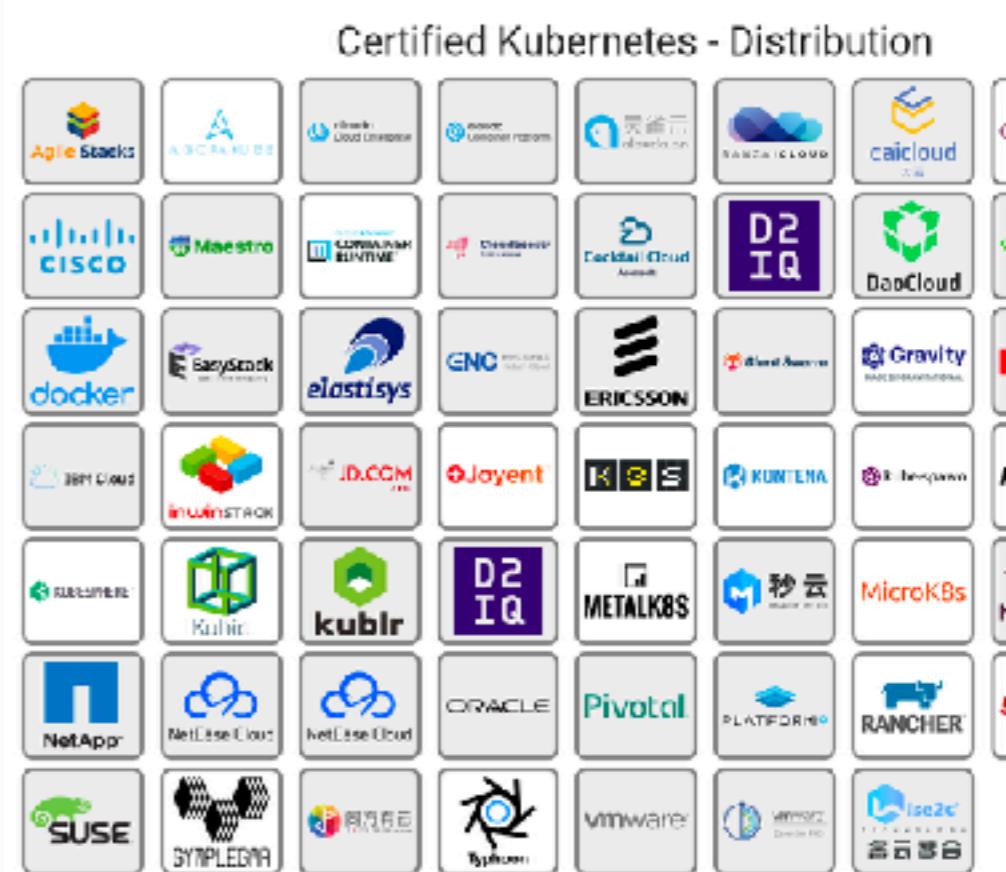
## Application Definition & Image Build



## Continuous Integration & Delivery



## Platform



API Gateway



## Service Mesh



## Runtime



Cloud Native Network



Certified Kubernetes - Hosted



live landscape are at [l.cncf.io](https://landscape.cncf.io)

## Platform

### Certified Kubernetes - Distribution



### Certified Kubernetes - Hosted

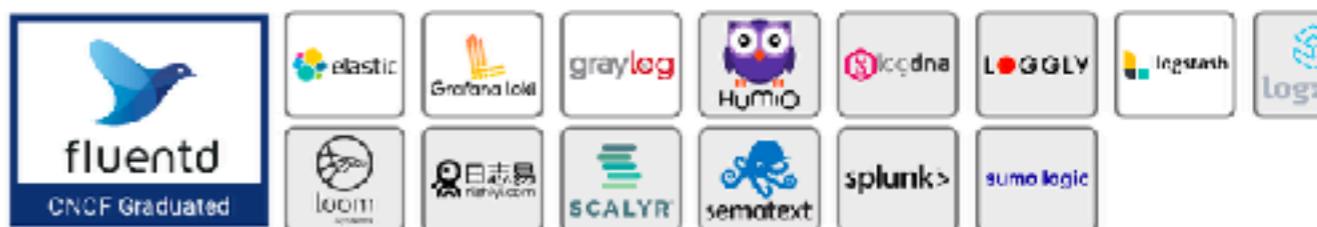


## Observability and Analysis

### Monitoring



### Logging



### Tracing



### Chaos Engineering



**CNI** CNCF Incubating

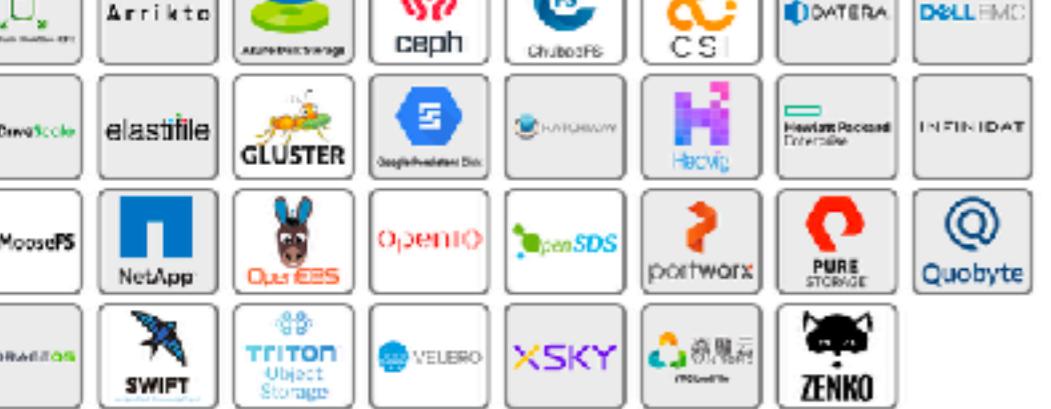
**Key Management**

**Certified Kubernetes - Installer**

**PaaS/Container Service**

**Kubernetes Certified Service Provider**

**Kubernetes Training Partner**



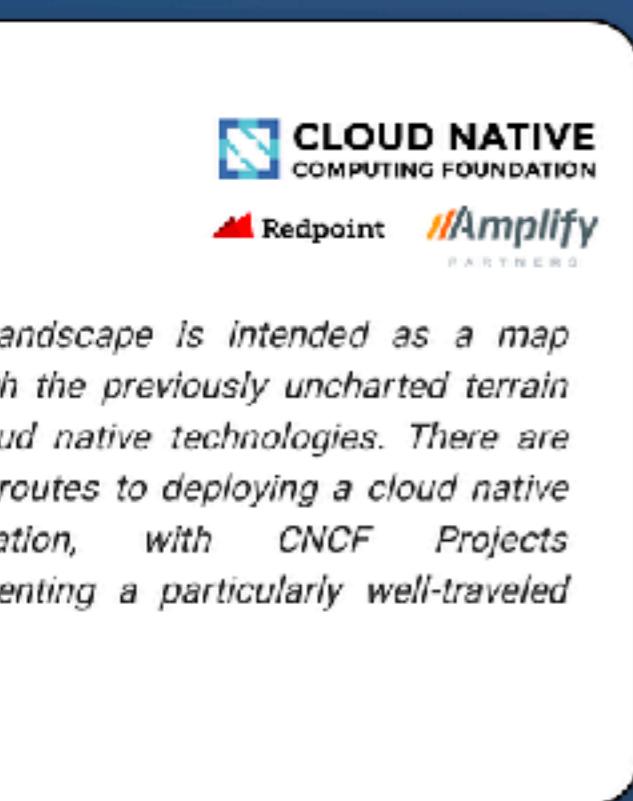
## & Configuration



## Container Registry



Kubernetes Certified Service Provider

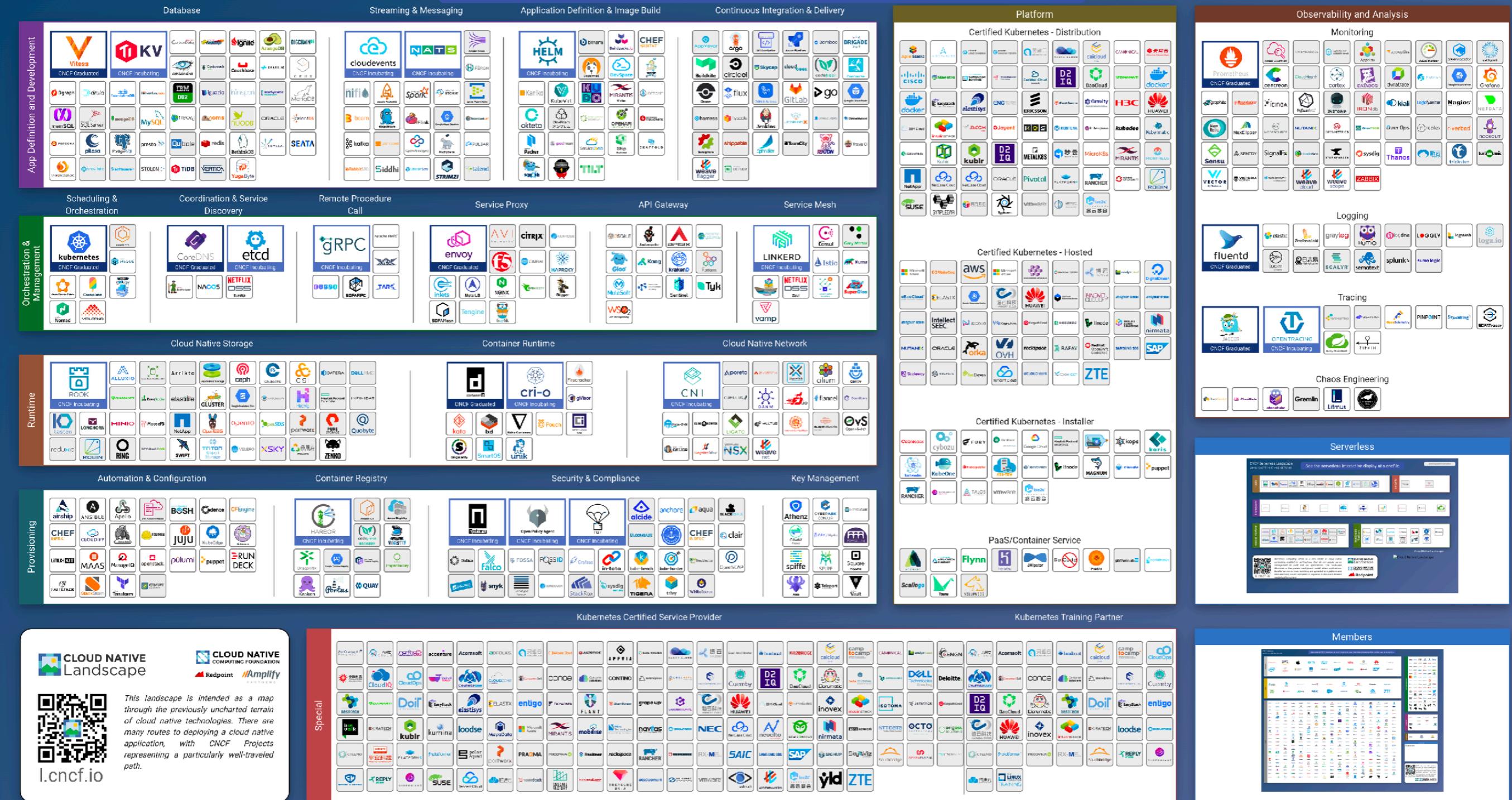


CNCF Cloud Native Landscape  
2019-12-07T14:47:48Z 6876186

2019-12-07T14:47:48Z 6876186

Overwhelmed? Please see the CNCF Trail Map. That and the interactive landscape are at [l.cncf.io](https://l.cncf.io)

revised logos are not open source



GOTO 2019 • Kubernetes Day

youtube.com/watch?v=b1RsNXGLuUk

Premium UA

Search

Ellen Körbes (@ellenkorbes)

#GOTOCON #GOTODAY #Kubernetes

GOTO 2019 • Kubernetes Day 3: The State of Kubernetes Development Tooling •  
Ellen Körbes

1:19 / 32:41

CC HD

AUTOPLAY

#GOTOCON #GOTODAY #Kubernetes

GOTO 2019 • Kubernetes Day 3: The State of Kubernetes Development Tooling •  
Ellen Körbes

3,003 views · Dec 5, 2019

62

2

SHARE

SAVE

Up next



GOTO 2018 • Functional  
Programming in 40...  
GOTO Conferences

<https://landscape.cncf.io/>





*That's all folks!*