

## Sample size.

Our sample size doubles year-over-year to **90,000** containers.

The data is collected from a segment of containers under management in our [Sysdig Monitor](#) and [Sysdig Secure](#) cloud service. Real users. Real data. Real world.

# 90,000

## Top 12 app components.

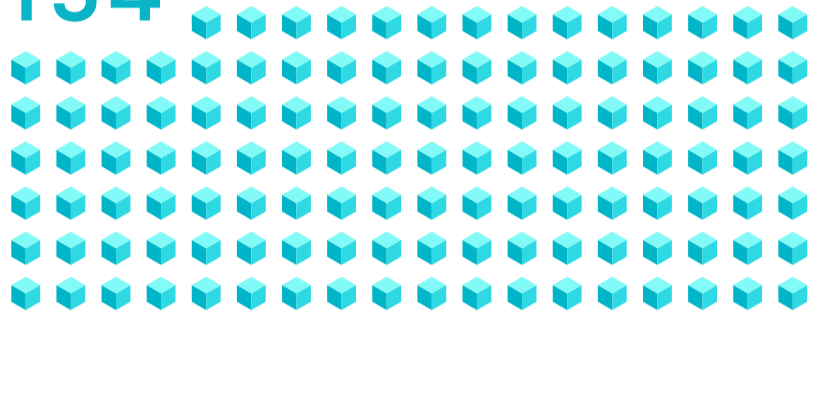
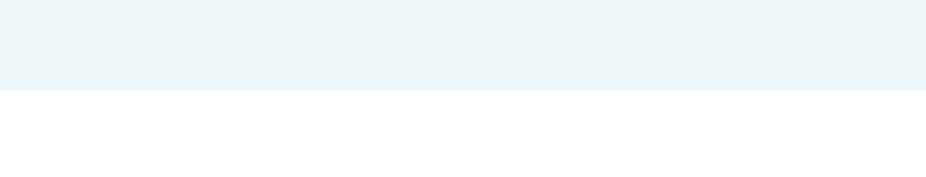
The old merges with the new.

Customers are consistently utilizing open source solutions to construct their microservices and applications. At the top of the list is use of [Java Virtual Machines \(JVM\)](#). Increased usage of database solutions like PostgreSQL and MongoDB signal a move to stateful services in containers.

## Container density rising

Density rises 50% year-over-year.

Compared to our [2017 report](#), the median number of containers per host per customer climbed 50%, from 10 to 15. Organizations deliver a larger number of application services from the same hardware, reducing Capex and Opex costs.



## At the other end of the spectrum...

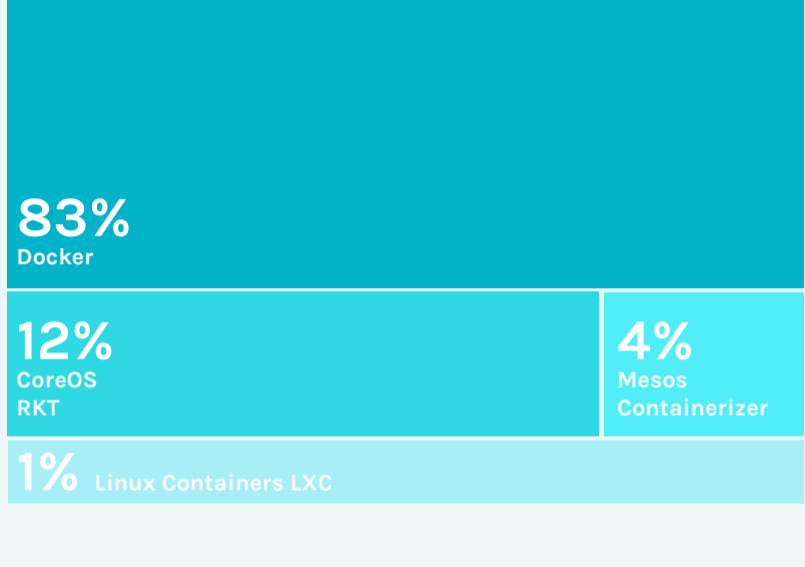
We observed density as high as 154 containers on a single host.

Up from a maximum of 95 in 2017.

## What container runtimes are in use?

Docker reigns, but are we seeing cracks in the dam?

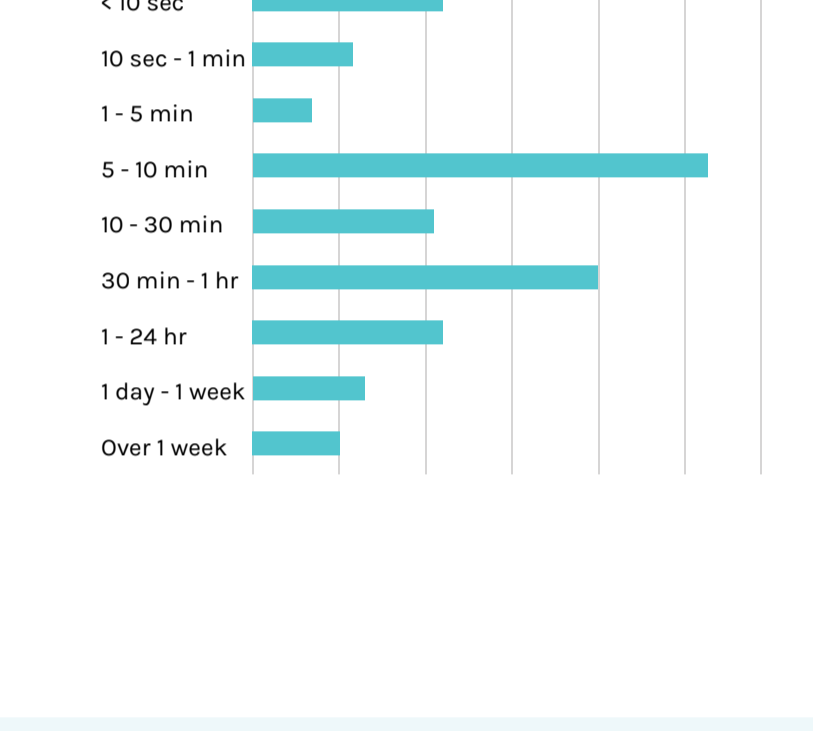
[Docker](#) shows up most in production, but customers appear to have a greater comfort level using non-Docker solutions in production. Use of other platforms, which amounted to less than 2% in 2017, increased significantly. CoreOS rkt grew to 12%, Mesos containerizer to 4%, and LXC grew to 1%.



## What is the lifespan of containers and services?

95% of containers live less than a week.

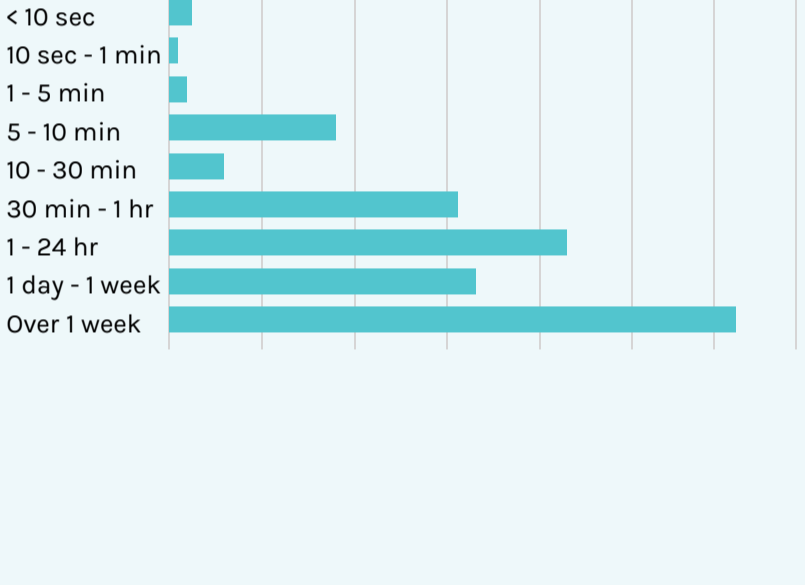
Eleven percent of containers stay alive for less than 10 seconds. 27% of containers churn between five to 10 minutes. Why so short? Systems scale as needed with demand and live only as long as they add value. Containers are created, do their work, and then go away.



## 69% of container images are updated in one week.

A small percentage of images are updated in less than 10 seconds – the majority are updated in a week.

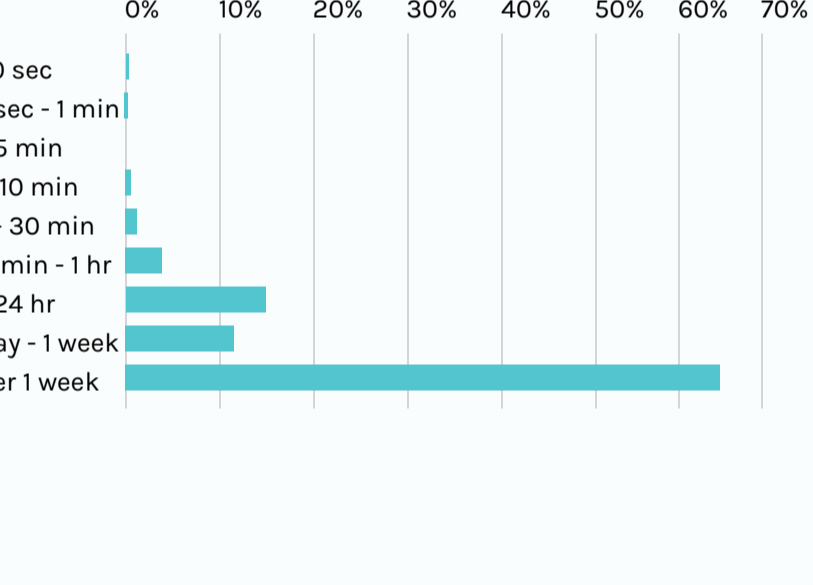
By looking at this data, we get an idea of how often customers are doing new deploys of updated containers as a part of their DevOps CI/CD process.



## 67% of services stay up beyond a week.

Containers and pods come and go, but services are expected to be available.

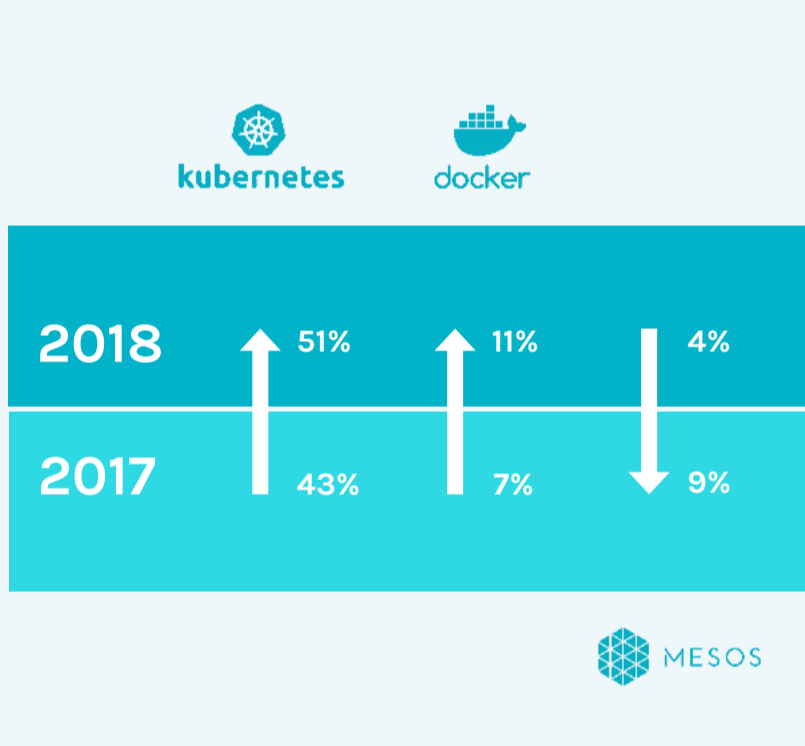
For most customers the goal is to keep applications working around the clock. Services allow containers and pods to die and replicate without impacting the application.



## Orchestrators for Docker containers.

First place goes to Kubernetes, followed by Kubernetes and Kubernetes.

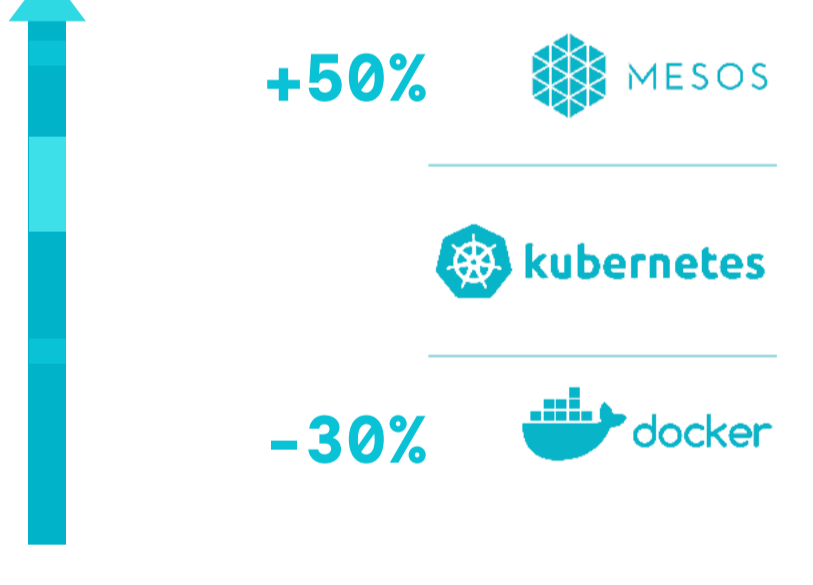
[Kubernetes](#) retained its hold on the lead position for the most frequently used orchestrator. Docker Swarm climbed to number two while Mesos-based orchestration, including [Mesos Marathon](#) and [Mesosphere DC/OS](#), dropped to third.



## Cluster size influences orchestrator choice: Mesos owns the big cluster game.

Where Mesos is used, the median number of containers deployed is 50% higher than Kubernetes environments.

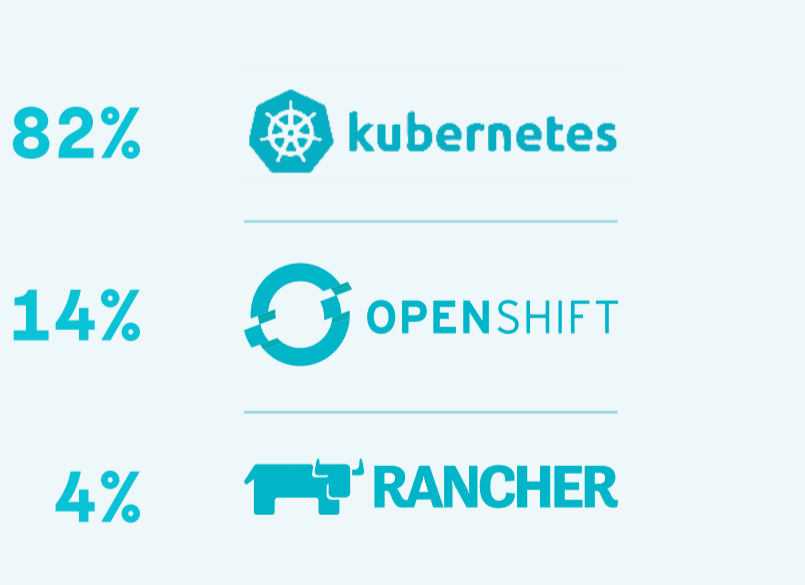
Though fewer in number, Mesos clusters are typically enterprise-scale. [Swarm](#) clusters, conversely, were 30% smaller compared to Kubernetes.



## Top flavors of Kubernetes.

Here come the Kubernetes distributions.

We dissected the use of Kubernetes by brand, to see if the Kubernetes in-use was the upstream open source version, or a package provided by a specific vendor. Open source Kubernetes holds the lion-share, but it appears that [OpenShift](#) is making inroads as is [Rancher](#).



## Most popular alert conditions.

It's all about performance + uptime.

What keeps container administrators up at night? Sysdig alerts tell us what matters most. Responsiveness and uptime/downtime top the list. Host and container resource metrics – cpu, memory, and disk usage – are also important. Increasingly, orchestration-focused alerts like, "Pod Restart Count" are used to alert on problems that are likely to impact application performance.

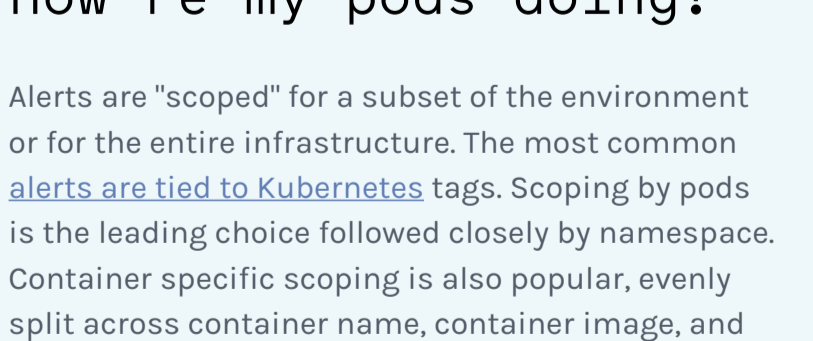
Response time
Entity up or down?
Pod restart count
CPU, memory, disk use by host
Container count
Event-based
Http errors
CPU, memory, disk use by container

## Popular alert scopes.

Users want to know – How're my pods doing?

Alerts are "scoped" for a subset of the environment or for the entire infrastructure. The most common [alerts are tied to Kubernetes](#) tags. Scoping by pods is the leading choice followed closely by namespace. Container specific scoping is also popular, evenly split across container name, container image, and container ID.

2017	2018
Deployment name	Pod name
Lower-level orchestrator constructs (e.g. pod, replicaSet, etc.)	Namespace
Role of host	Host name
Cloud provider tags	Container name, image or ID
Container name	Cloud provider tags



## Custom metrics.

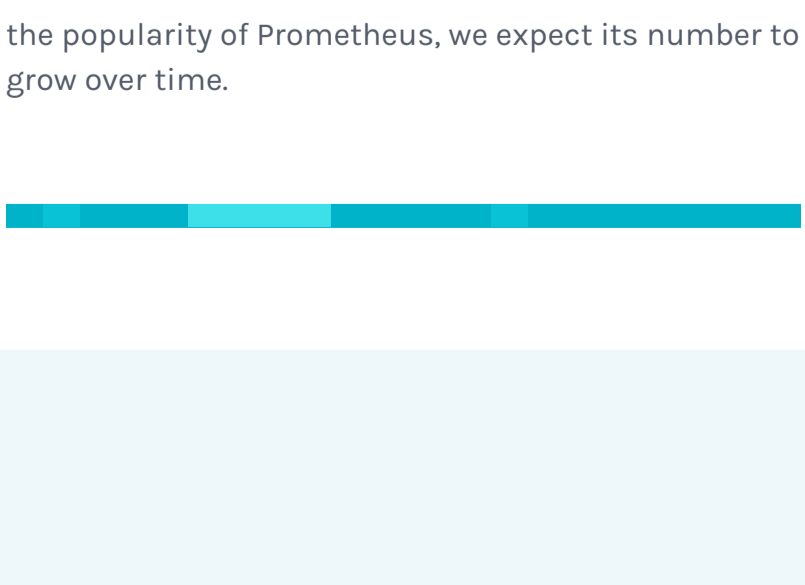
There's no one format to rule them all.

Sysdig automatically collects custom metrics like [JMX](#), [StatsD](#), and [Prometheus](#). JMX metrics associated with Java applications were collected by 55% of users. StatsD comes in at 29% and Prometheus at 20%. With the popularity of Prometheus, we expect its number to grow over time.

## Popular container registries.

It's a split decision – clear leader.

Registries are fundamental to any container deployment pipeline. Some are public, some private, some as-a-service, and some deployed as on-premises software. Of the top 3, [Google Container Registry](#) (GCR) is the most frequently used by Sysdig customers. [Quay](#) is a close second most used, followed by Docker and Amazon [Elastic Container Registry](#) (ECR).



## Want to learn more?

Download the complete [Docker Usage Report](#) to see all the details.