Kubernetes jobs market

Trend report 2022 Q4

kube CAREERS

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Kubernetes jobs market trends for the year 2022

2021

What is the average salary for a Kubernetes engineer in 2022? Has it increased since 2021?

Which technologies are most in-demand for a Kubernetes job?

What about work experience? How much work experience do companies prefer?

Let's try to get some answers to the above questions (and possibly more) with our Kubernetes job market trends report for the year 2022.

2022

Before we go ahead, a few words on the data:

1. At Kube Careers, we solely focus on Kubernetes Jobs.
2. We only publish jobs that mention Kubernetes as a requirement and not a nice to have, or a plus.
3. The dataset is comparatively small — a total of 373 job descriptions from January to December 2022.
4. If a job listing doesn't have a clear salary range, we discard it. Many job offers don't indicate a salary range, and we think this is not good for engineers looking for work.
5. We discarded job offers from recruitment agencies.
6. We have analysed listings on platforms used by European and American audiences.
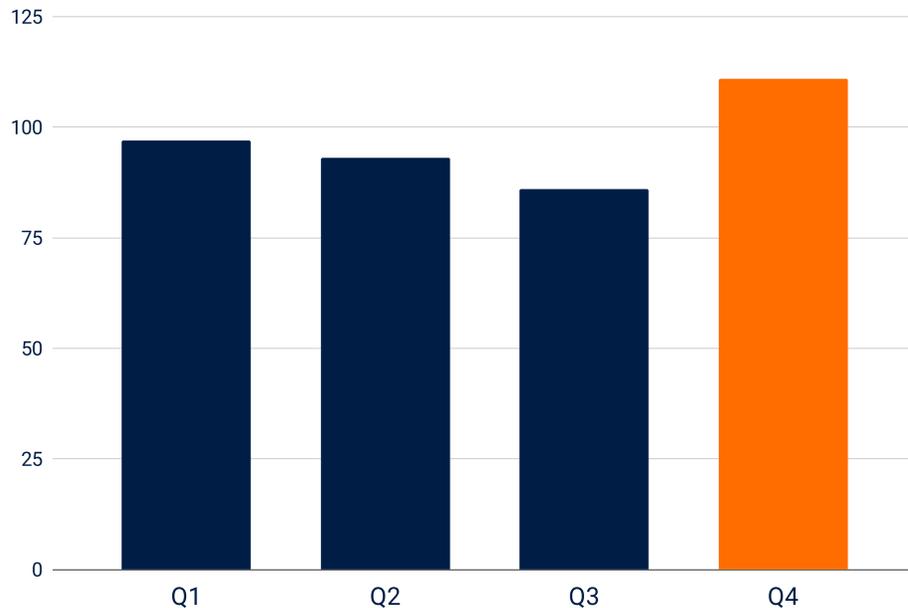7. Please keep the above points in mind as we look into the data.

On we go!

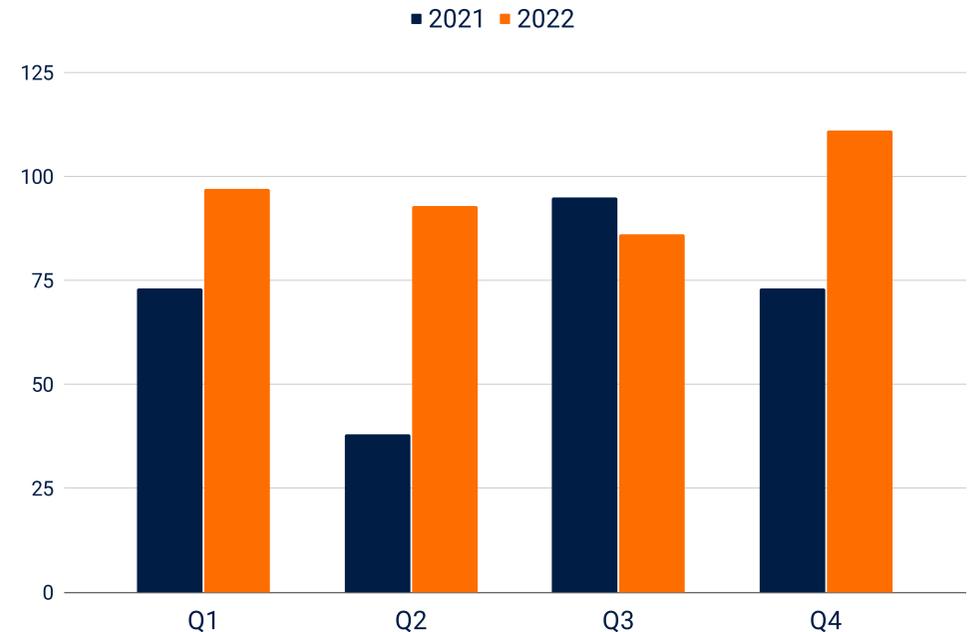# Which quarter in 2022 had the most job listings?

> *Not all jobs are created equal. Similarly, not all quarters throughout the year are equal*

> **Perhaps we'll get a clearer picture by comparing it with the quarters in 2021?**

Jobs by quarter

We've published the most jobs in Q4 with 111 listings second was Q1 with 97 listings, followed by Q2 and Q3 with 93 and 86 job listings, respectively.

This variance can be a result of numerous factors, and what also must be noted is that although the jobs market might be flooded in a particular quarter, it doesn't mean all these jobs have Kubernetes as a requirement.

As Kubernetes becomes more popular with time, we'll have more jobs, including it as a necessity (than a plus), and in turn, we'll have a much clearer picture of how the Kubernetes job market changes (if at all) with the seasons.

Jobs by quarter (2021 vs 2022)

■ 2021 ■ 2022

Not a lot in common, is it?

In 2021, Q3 was the recruitment quarter while Q2 had the least job listings. Q1 and Q4 had an equal number of jobs in 2021.
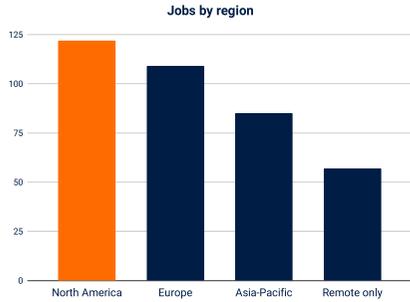
We can't be conclusive with this comparison since the COVID-19 restrictions were lifted at varied points of the year by most countries, thus affecting the supplementary job market.

Perhaps we'll get a better picture in 2023?

Where are most Kubernetes job offers located?

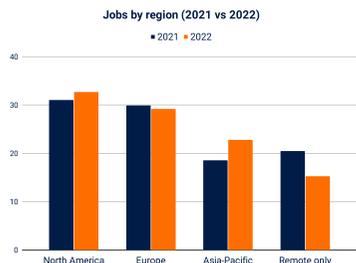*In North America.*

At least for the year 2022.

Jobs by region

Of the **373** job listings in 2022, 122 (almost 33%) of these came from **North America**.

Not so far away (statistically!) was **Europe** with **109**(29%) job listings.

Followed by **Asia Pacific** in third place with 85(22%), and **Remote only** jobs with 57(15%) listings.

> **Did North America have the most job offers back in 2021 as well?**

Yes, but there is more to it.

Jobs by region (2021 vs 2022)

In 2021, the order of locations was almost the same except that remote_ only jobs took the third place.

1. A few key observations from the year-on-year comparison:
2. The Remote only jobs have reduced - more on this later.
3. North America and Europe continue to be the top destinations for Kubernetes jobs.

> **What about remote working? Is that still the trend?**

It is.

Remote work mentions
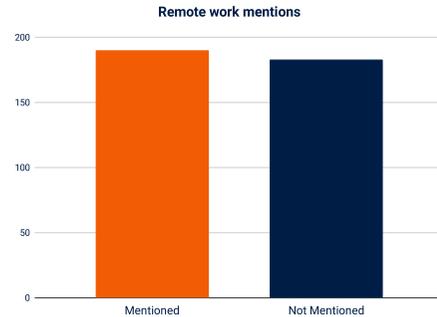
In 2022, we had **190** job listings that mentioned a remote working nature. However, this does not mean all the 190 listings allow the employee to work from anywhere in the world - there exist different tiers of remote work (more on this later).

In essence, **more than 50%** of the jobs in 2022 mentioned a remote working nature.

> **Was it the case in 2021 as well?**

It was different, but there is more to it.

Remote work mentions 2021 vs 2022 (normalised)
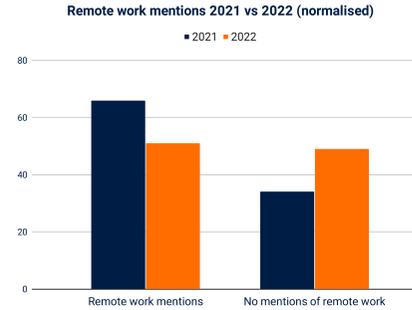
It can be seen that in 2021, there were more remote jobs. One key factor to note here is that the COVID restrictions in some countries were lifted entirely only in the latter half of 2021.

Also, since COVID seems to be taken care of now, companies are calling employees into their offices in some form or another. This also means that offering remote working for a job listing isn't a compulsion or an absolute necessity.

> **The different tiers of remote working**

Broadly, there exist three tiers of remote working:

1. **Fully remote jobs:** You can work without going to an office, ever. These can be remote (worldwide) or remote (region-specific), e.g. Remote (US).
2. **Remote hybrid jobs:** These involve occasional visits to an office, and thus these can't be remote (worldwide).
3. **Office-only jobs:** There are traditional office jobs wherein the employee has to show up to the office regularly.

In 2022, we had a proper mix of these tiers, and how!

Remote vs Office trend
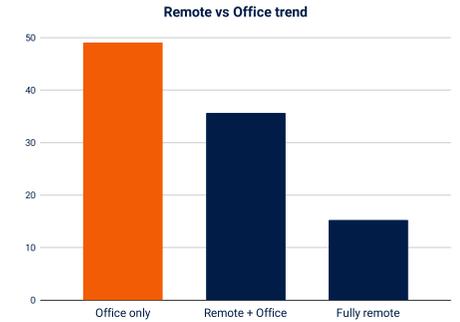
Of the jobs that mention *remote work*, almost **50%** of these were Office only, followed by **35%** Remote + Office, and **15%** fully remote positions.

> **How do these trends compare to last year?**

Remote vs Office trends 2021 vs 2022 (normalised)
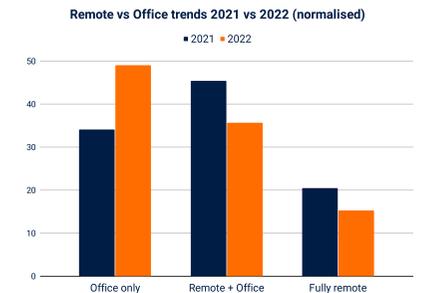
What is apparent is how Office + **Remote working** jobs dominated the 2021 job market, which is understandable since we were resurrecting from the COVID-19 effects.

Notice how the remote_only jobs decreased slightly year-on-year.

In conclusion, remote working is here to stay. In what form, though, is anyone's guess?

What's the salary range?

We have divided the salary ranges into two categories:

1. North American Kubernetes jobs (normalised to be in USD), and
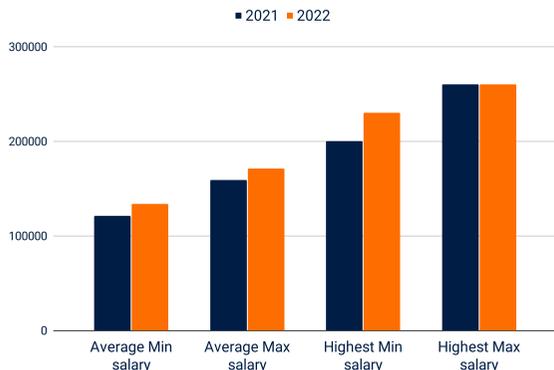2. European Kubernetes jobs (normalised to be in EUR).

❯ Salary ranges for American jobs in USD

Salary ranges for American jobs (USD)

The *minimum* salary offered in North America, on *average*, stands at **$133,918**, while the *maximum* salary (on average) offered stands at **$170,984**.

The highest salary range for 2022 is between **$230,000-260,000**.

Salary metrics (2021 vs 2022)

■ 2021 ■ 2022

The minimum average salary has increased by **10.74%,** and the maximum average salary has increased by **7.44%** compared to the salaries in 2021.

The highest salary range also has a massive **15%** increase year-on-year!

Since inflation has reached astronomical numbers globally, it's a good respite to know that salaries (especially the minimum ranges) have increased substantially.

❯ Salary ranges for European jobs in Euros

Salary ranges for European jobs (in Euros)

❯ What about European salaries in 2021?

We started analysing the European jobs from the first quarter of 2022; hence we can't compare year-on-year numbers.

However, if we compare the average salaries from Q1 2022 to those in Q4 2022, here' what we get:

1. The average minimum salary has decreased by 2%
2. The average maximum salary has increased by 7%.

7% **2%**

The *minimum* salary offered in Europe, on *average*, stands at **€82,554**, while the *maximum* salary (on average) is at **€106,443**.

The Highest salary range in Europe stands at **€202,277**.

Note: Europe is a vast, diverse continent with varied living costs, economies, and technological status. Thus, we can't be conclusive with these numbers, but we can get a decent representation of the state of salaries in Europe.

Are you more likely to be eligible for Kubernetes vacancies if you have a certification?

It's hardly a requirement.

Mentions of certifications

In 2022, we had only 12% of the job listings mention a certification requirement.

Has it always been the case with certifications?

Mostly yes.

Certification mentions year-on-year
■ 2021 ■ 2022

In 2021, we had only **8%** of the jobs mention a certification requirement, which, compared to 2022, is a **4%** drop in and of itself.

Although these metrics point to a pattern where companies don't care about certifications, there is definitely more to it.

Perhaps the lack of certification mentions is to create lower entry barriers for applicants? It could be, but we aren't sure (maybe someone reading this has a more precise view than us?)

Lower entry barriers or no barriers, certifications will always be seen as an advantage.

So, which certifications should Kubernetes engineers be focussing on?

Let's find out.

Popular certification mentions in 2022
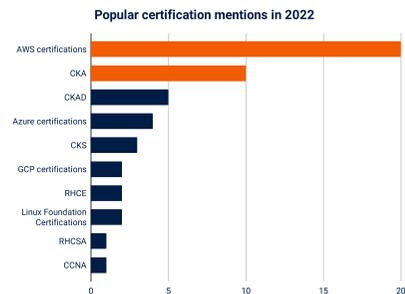
If you are to complete just one certification, choose AWS certifications. If you are looking for multiple certifications, go for AWS and Kubernetes certifications.

Of the job listings that mention a certification, there were 20 instances of AWS certifications, 10 for Certified Kubernetes Administrator (CKA), 5 for Certified Kubernetes Application Developer (CKAD), and 4 for Azure Certification.

Mind you; there were instances where more than one certification was mentioned in the job description.

Which were the popular certifications in 2021?

**Popular certifications year-on-year**
■ 2021 ■ 2022

The graph shows that only a little has changed since the last year.

Key observations here are:

• AWS certifications are most in demand.

• Kubernetes certifications are second in demand.

• Azure and GCP certifications are neck-to-neck.

What's the trend for Kubernetes certifications?

Before we get into the specifics, let me iterate that only **3%** of the jobs that we listed in 2022 mentioned a Kubernetes certification. Thus while we are trying to derive patterns here, the dataset needs to be more significant to be conclusive.

Kubernetes certification mentions
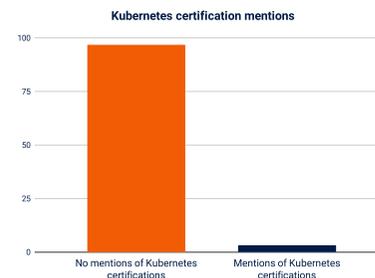
How have Kubernetes certifications trended in 2022?

**Kubernetes certifications trend**
— CKA — CKAD — CKS
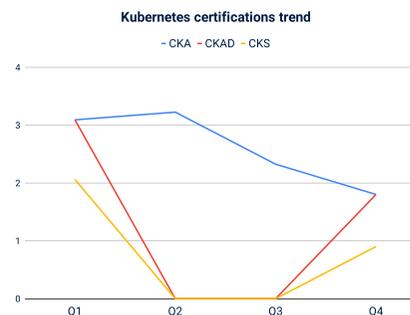
The graph shows that the *CKA certification has been the most popular* in all the quarters of 2022!

Also, what is apparent is how the *CKAD* certification has been mentioned only in Q1 and Q4.

The least popular seems to be CKS, which is understandable since:

• CKA is the longest-running Kubernetes certification

• You can't attempt the CKS until you have completed the CKA certification.

What about Cloud provider certifications?

Popular cloud provider certifications
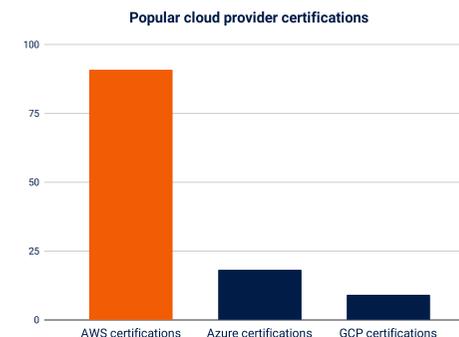
Of the cloud certifications mentioned,

• More than 90% of these were for AWS

• 18% for Azure

• 9% for GCP certifications.

Also, what's interesting is there were multiple instances wherein job descriptions cited more than one cloud provider certification.

How relevant are CI/CD methodologies for a Kubernetes job?

Highly relevant.
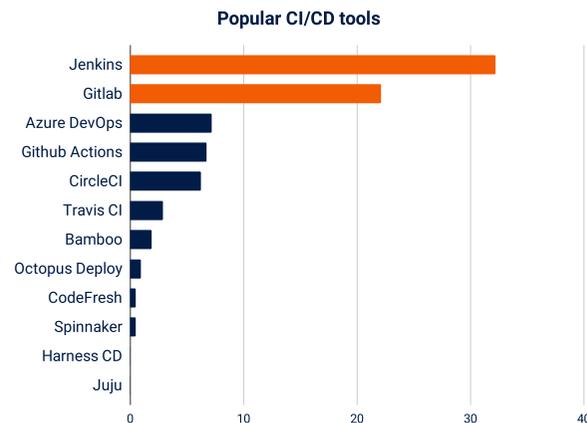
CI/CD methodology mentions
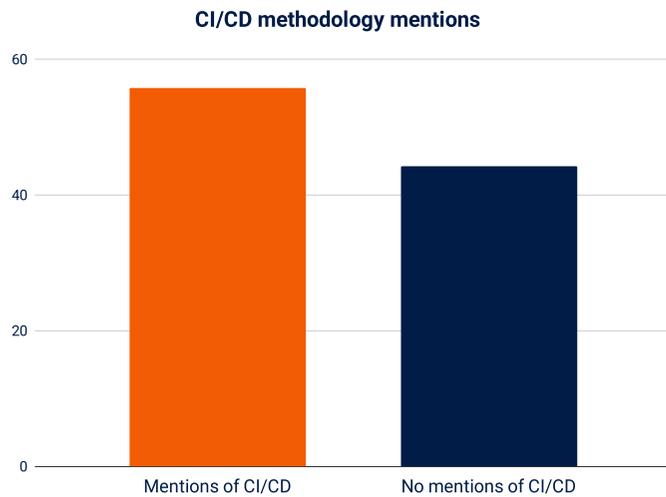
Of all the jobs we published in 2022, **more than 55%** of these mentioned a requirement for Continuous Integration/Continuous Deployment (CI/CD) methodology experience!

Even in 2021, the mentions for CI/CD were hovering around the 50% mark.

So, which CI/CD tools are popular for Kubernetes jobs?

Jenkins and Gitlab!
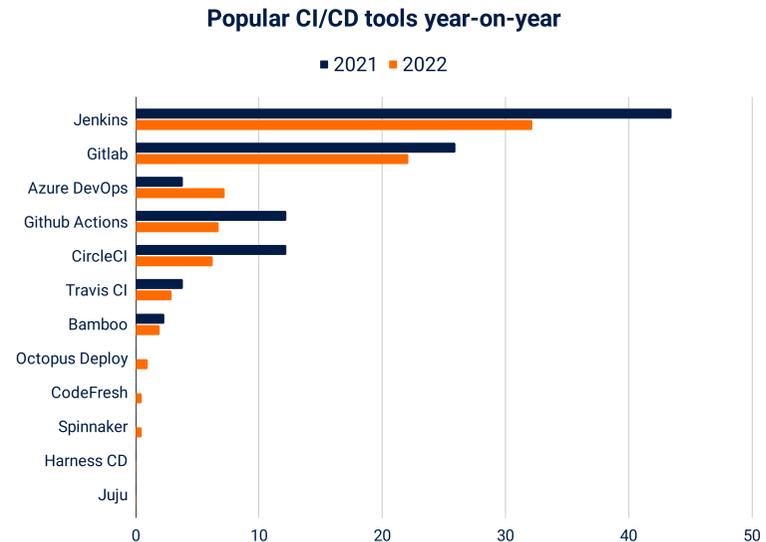
Popular CI/CD tools

Of the job descriptions that mentioned a CI/CD tool, more than **32%** of these mentioned Jenkins while **22%** of these mentioned *Gitlab*.

These were followed by:

- Azure DevOps (7%)
- GitHub Actions (6%)
- CircleCI (6%).

Was the scenario different in 2021?

It was slightly different.

### Popular CI/CD tools year-on-year

■ 2021 ■ 2022

From comparing the two datasets, we can say that:

1. *Jenkins is the most popular CI/CD tool for Kubernetes jobs.*
2. Gitlab is a strong second.
3. Azure DevOps, GitHub Actions, and CircleCI switch places with popularity but can be treated equally.

What about configuration management tools? How important are they for a Kubernetes job?
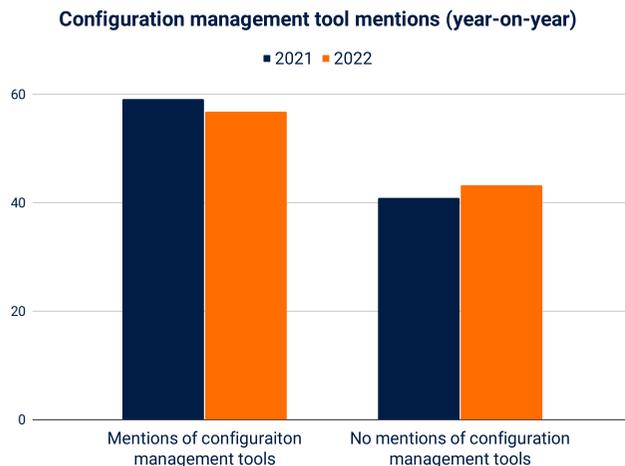
Configuration management tools experience is regarded highly for Kubernetes jobs!

Configuration management tool mentions
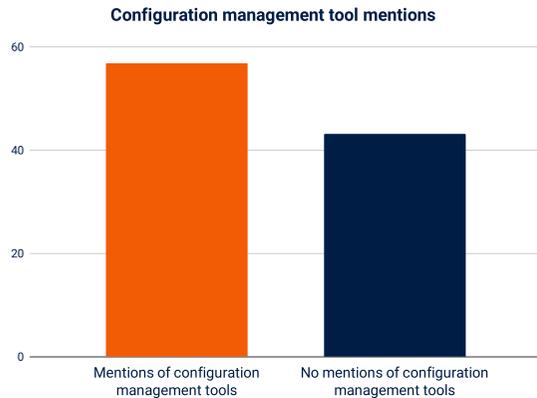
Of the 373 job listings in 2022, 212 (56%) mentioned a requirement for configuration management tools experience!

Were things different in 2021?
Not much.

Configuration management tool mentions (year-on-year)

■ 2021 ■ 2022

In 2021, **more than 59%** of jobs mentioned a configuration management tool experience requirement.

So, configuration management tools are essential for Kubernetes jobs. What about the specifics? Which tools should you be gaining experience in?

If you plan to gain experience in just one configuration tool, choose Terraform.

Popular configuration management tools
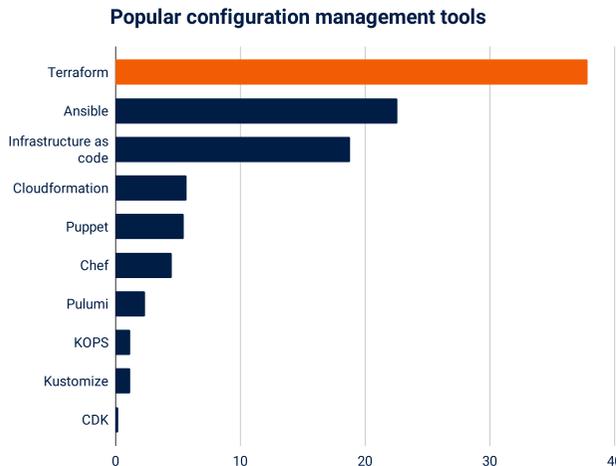
From our dataset, there were **448 mentions of configuration management tools,** which means job descriptions (not all) mentioned more than one configuration management tool.

Was the popularity order the same in 2021?
Almost.

The top 3 configuration management tools in 2021 were:

- Terraform (37%)
- Ansible (23%)
- Puppet (9%).

37% **23%** **9%**

Of the 448 mentions, **159 (37%) of these were for Terraform**, 95 (22%) were for Ansible, and **79 (18%)** were for Infrastructure as code.

The remaining ones were for:

- Cloudformation: 24 (5%)
- Puppet: 23 (5%)
- Chef: 19 (4%)
- Pulumi: 10 (2%)
- KOPS: 5 (1%)
- Kustomize: 5 (1%)

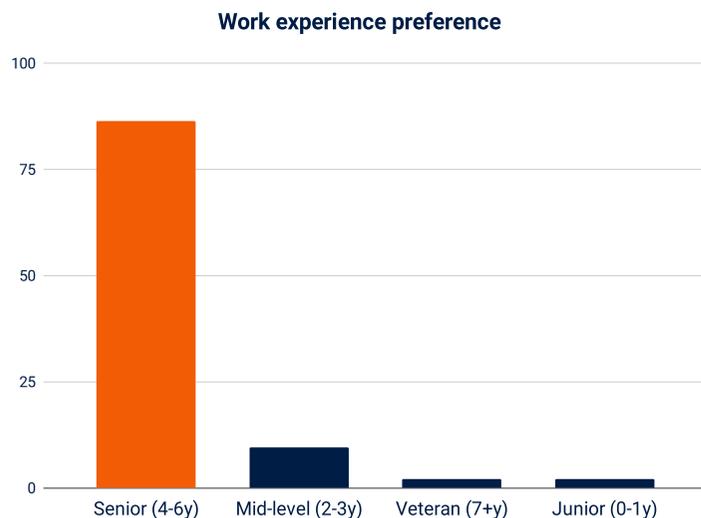# How much work experience do companies seek for a Kubernetes role?

The case with experience is: *while companies may seek it*, they don't explicitly mention it.

In 2022, almost **75%** of the jobs we published didn't explicitly mention an experience level for the role.

Work experience mentions

Of the jobs that mention work experience, **more than 86% (82 listings)** mentioned senior-level expertise.

This was followed by mid-level experience with **9%** representation.

Just *4 job listings sought veteran and junior-level experience (2 each)!*

Were things different in 2021?

Let's find out.

Work experience preference (year-on-year)

■ Senior (4-6y) ■ Mid-level (2-3y) ■ Veteran (7+y) ■ Junior (0-1y)

Of the ones that mentioned experience, what is the polarity?

It's quite clear what the companies are seeking when they mention work experience: Senior-level experience

Work experience preference
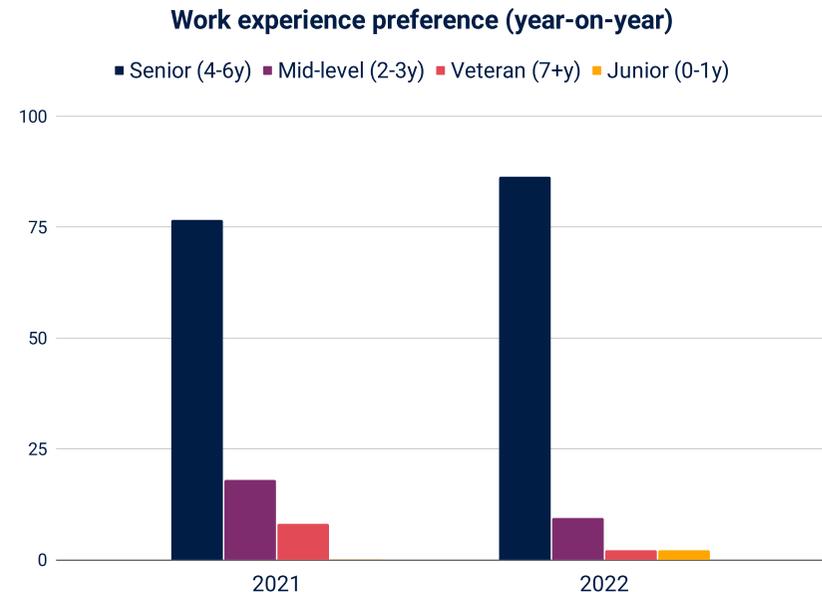
As can be seen, the senior-level experience was **the most sought after even in 2021**, followed by mid-level experience and a minuscule representation of veteran-level experience.

The year-on-year increase in junior-level roles is a silver lining in all of this.

In 2021, we didn't have a single junior-level position, although we had two this year, we hope to see this number increase substantially in 2023!

Infrastructure location: Which are the popular cloud providers?

In our 2022 dataset of 373 jobs, **300 (80%)** of these mentioned their infrastructure location!

Infrastructure location
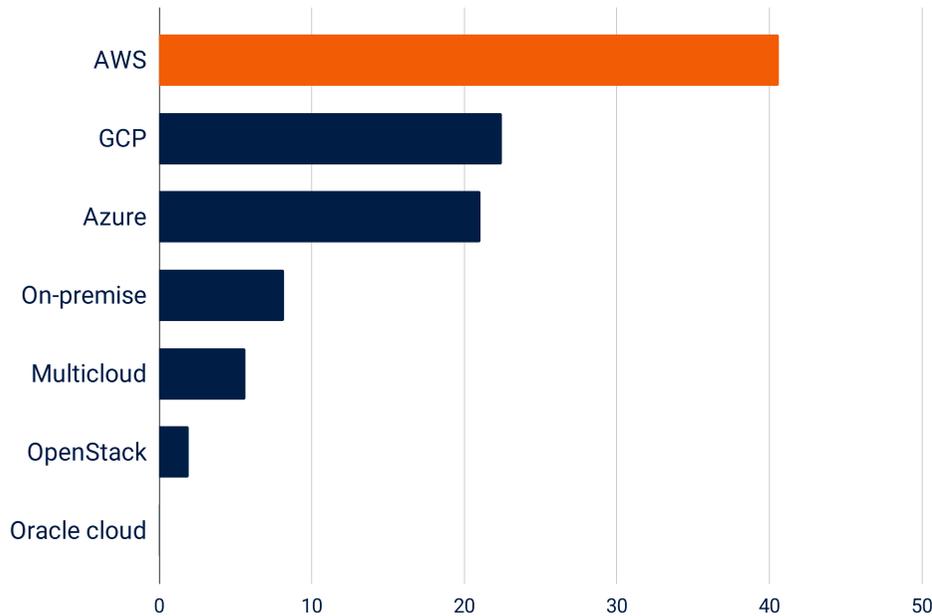
It may not come as a surprise, but **AWS is the most preferred infrastructure location** with 40% of the tags mentioning AWS.

GCP and *Azure* are neck to neck with 22% and 21% representation.
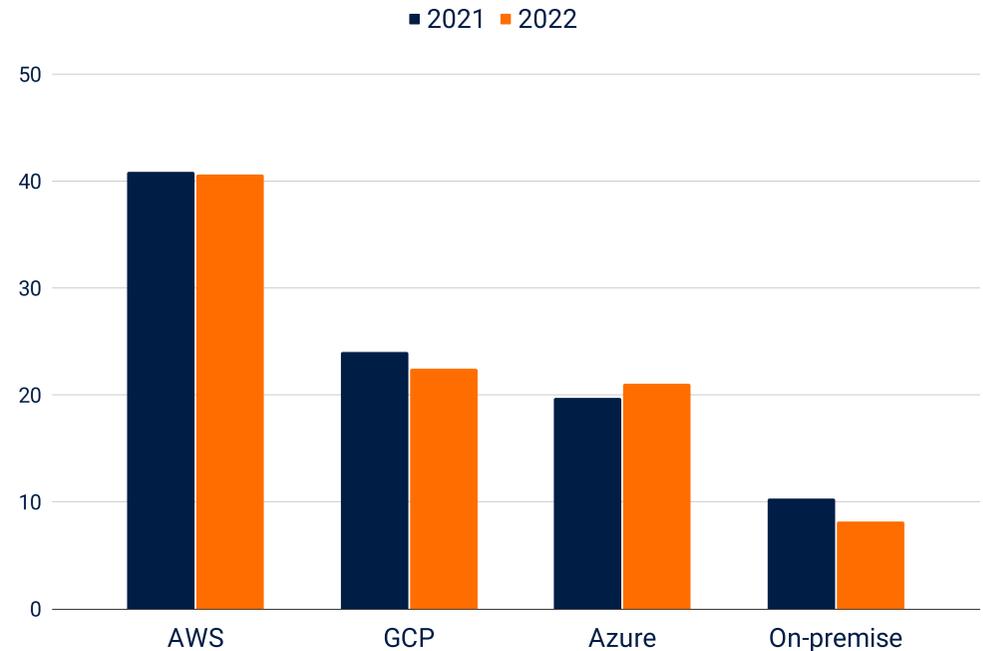
While the remaining tags are:
1. On-premise – 8%
2. Multicloud – 5%
3. OpenStack – 2%.

8% 5% 2%

❯ **How were the AWS, GCP, Azure, and On-premises cloud provider trends in 2021?**

It seems as if nothing has changed over the year.

Top cloud providers (year-on-year)
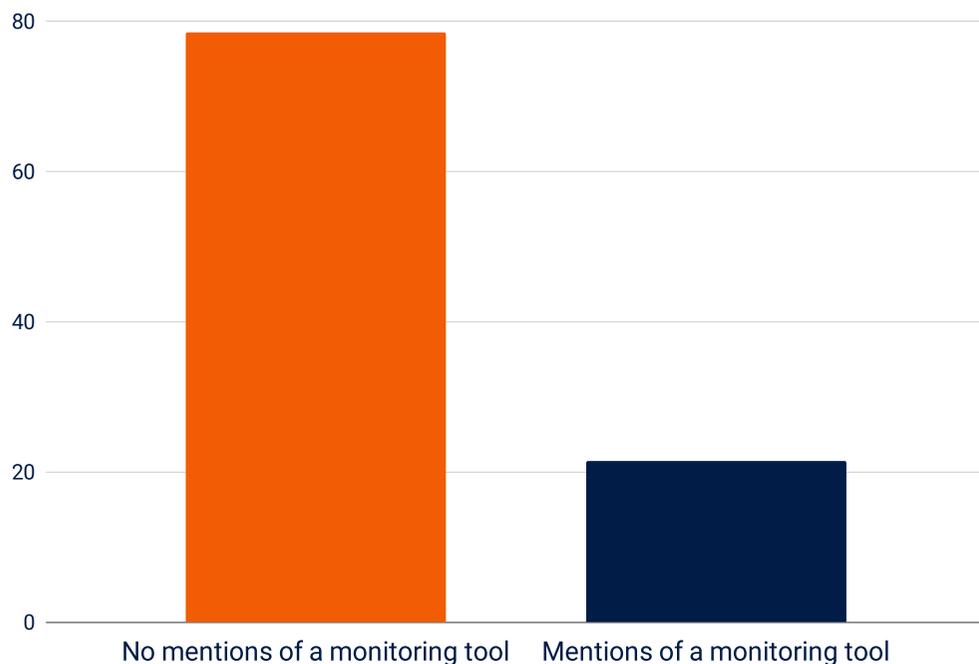
■ 2021 ■ 2022

Looking at the data for the last two years, we can conclude that:
- AWS is the undisputed king when it comes to infrastructure location.
- GCP and Azure can almost be tied in second place.
- On-premise location stays a constant fourth.

What about monitoring stack? Which tools are popular?

Monitoring tools are not highly relevant for Kubernetes jobs. At least, that's what the data suggests.

Monitoring tool(s) mentions

> ### What about the ones that did mention it? Are any specific tools popular?
>
> *** Prometheus *** leads the way when it comes to popular monitoring tools.

Popular monitoring tools

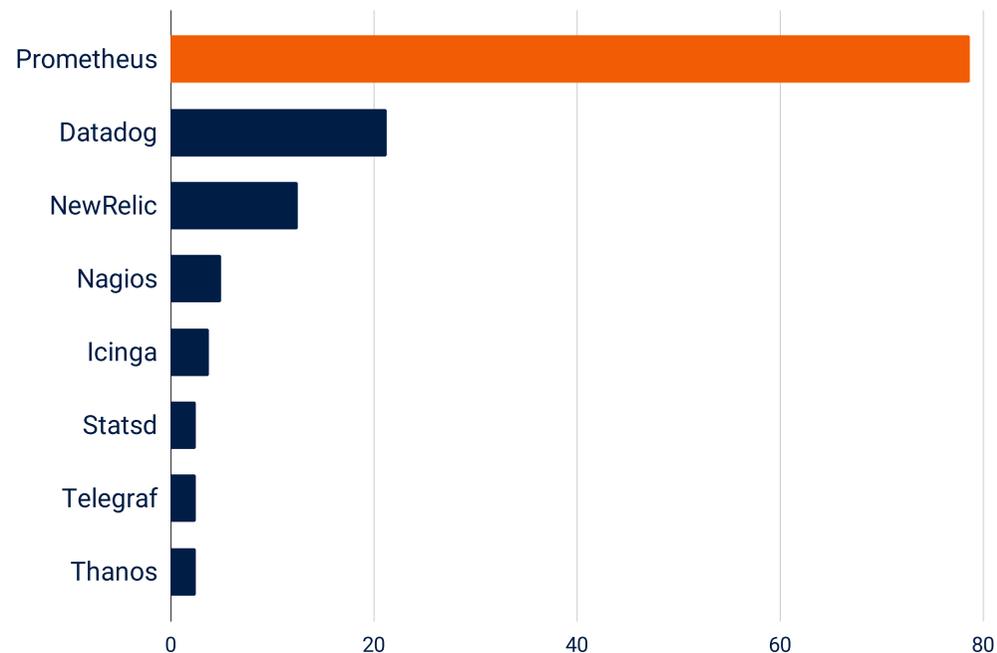Of the 373 jobs we published in 2022, 293 of these did not mention a requirement for a monitoring tool!

Such was also the case for 2021, wherein almost 80% of the jobs did not list a monitoring tool as a requirement.

**2022
293**

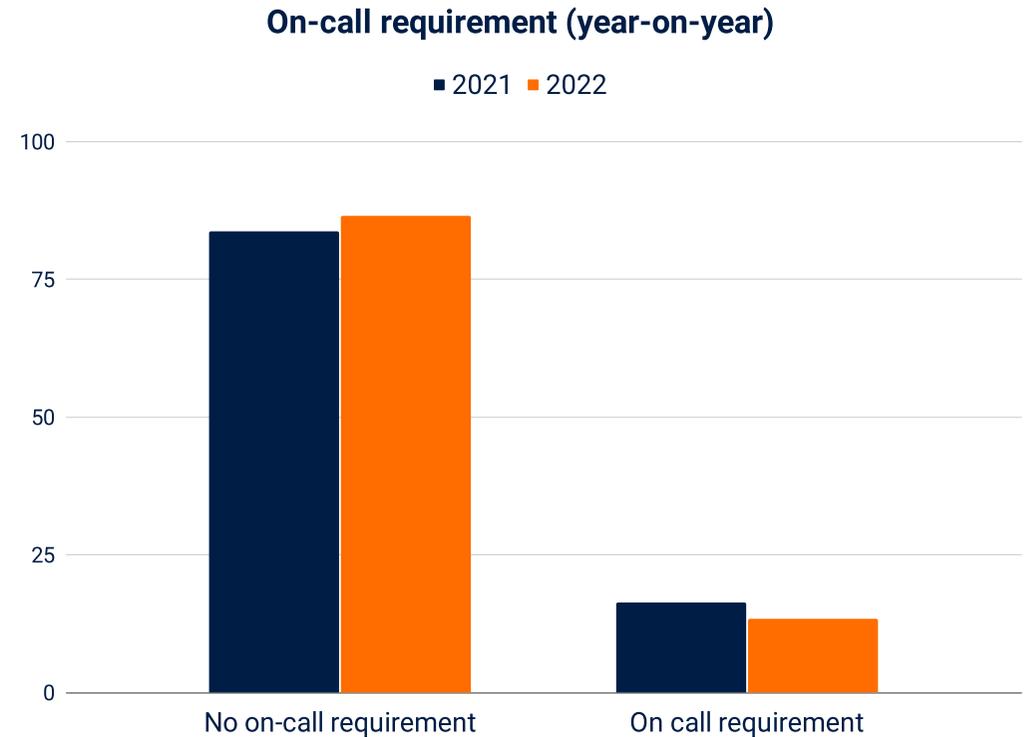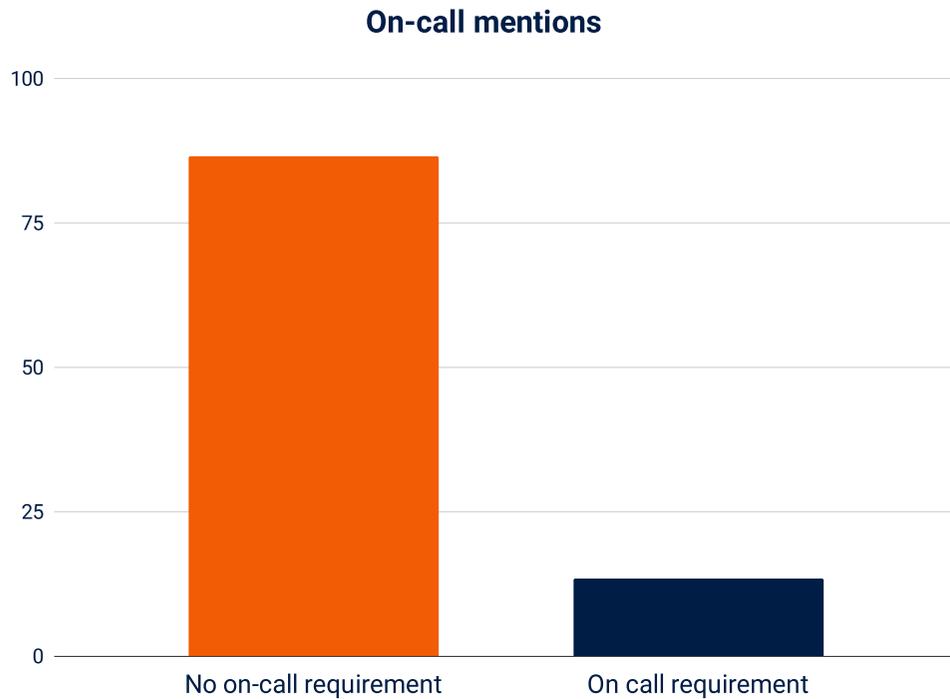Of the jobs that mentioned a monitoring tool, Prometheus was mentioned in almost 79% of these — followed by *Datadog (21%), NewRelic (12.5%), Nagios (5%)* and others.

Overall, if you do want to gain experience in monitoring tools, **start with Prometheus**!

Call me, maybe?

Maybe, never!

On-call mentions

On-call requirement (year-on-year)

■ 2021 ■ 2022

The judgement is out: *nobody likes to be on-call, even if it's rotational!*

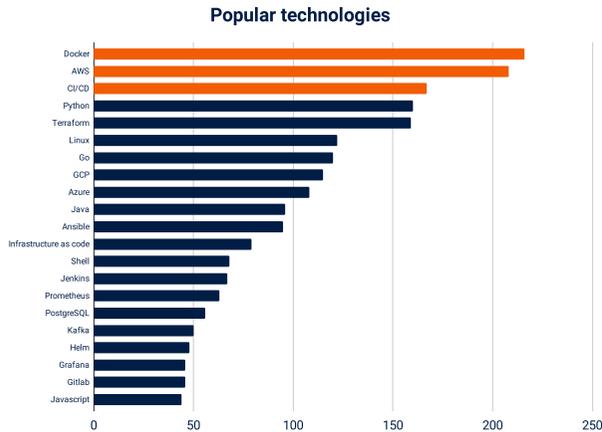Thankfully, only **13%** of the jobs listed in 2022 mentioned a requirement to be on-call.

What's more interesting is that it is a **3% decrease** year-on-year, as 16% of the jobs in 2021 mentioned an on-call requirement.

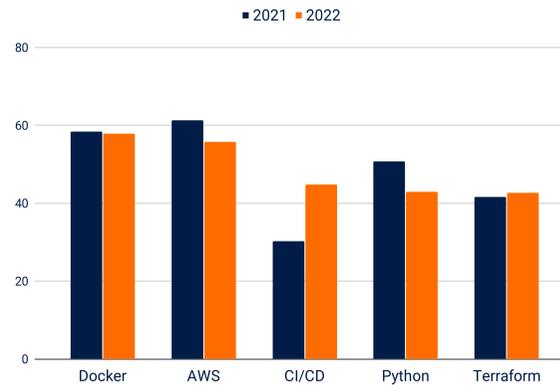# Which popular technologies other than Kubernetes should you learn?

While Kubernetes is the norm here, learning other technologies sure aids one's resume.

Popular technologies

The most popular choices of technology among Kubernetes engineers are:

Programming languages:

Python, **Go** and **Java**. • Cloud platforms: **AWS**, **GCP** and **Azure** (in that order). • Containers: **Docker**. • Operating systems: **Linux**. • Infrastructure as Code: **Terraform**. • Database management: **PostgreSQL**. • Configuration management: **Ansible**. • CI/CD: **Jenkins**.

It's interesting to notice that if you gain experience in AWS, CI/CD, and Python, you will be eligible for more than 60% of the Kubernetes jobs.
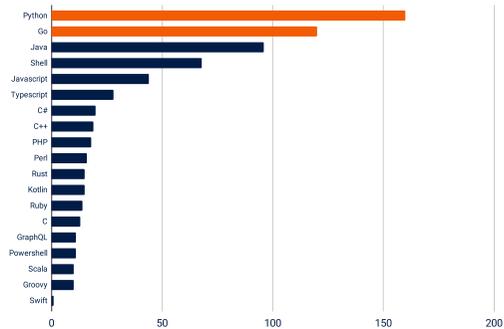
❯ Which were the popular technologies in 2021?

Here's what we find if we take a normalised view of the top 5 technologies in 2022 versus 2021.

Popular technologies (year-on-year)

Take one glance, and you might miss the difference!.

What is apparent is how little has changed over the year.

Thus, the analysis solidifies the claim that if you are familiar with *AWS, CI/CD, and Python*, you can apply for most Kubernetes jobs.

❯ What about Programming languages? Which ones are the most in-demand?

In 2022, out of the 373 jobs we listed, *285 of these mentioned at least one programming language as a requirement.*

Also, there were a total of **737** tags for Programming languages, meaning job descriptions which mentioned programming languages did so with multiple languages.

Popular programing languages

Of all the 737 tags, **160 (21%)** were for **Python**, **120 (16%)** for **Golang**, and **96 (13%)** for Java.

The remaining ones are:

- Shell with 68 (9%)
- Javascript with 44 (6%)
- Typescript with 28 (4%)
- C# with 20 (2%)
- C++ with 19 (2%)

❯ How have these popular programming languages trended in 2022 over the quarters?

Programming languages over the quarters

Watching the trends over the quarters, here are some key observations:

1. **Python is the undisputed king**, never losing the top spot in any of the quarters.

2. It can be said that **Go**, and **Java** share a second place among themselves.

3. Although with variance, Shell, Javascript, and Typescript maintained their 3rd, 4th, and 5th spot.
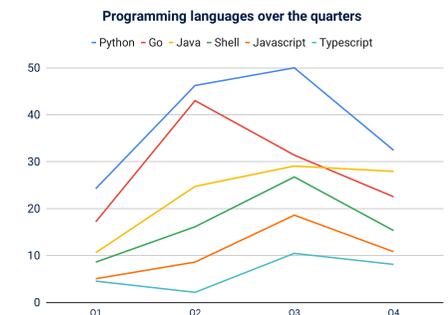
Service mesh: How relevant a skillset is it?

It isn't much relevant according to our dataset.

❯ **Of the ones that mention service mesh(es), here are the popular ones:**

Service mesh mentions

Popular service mesh
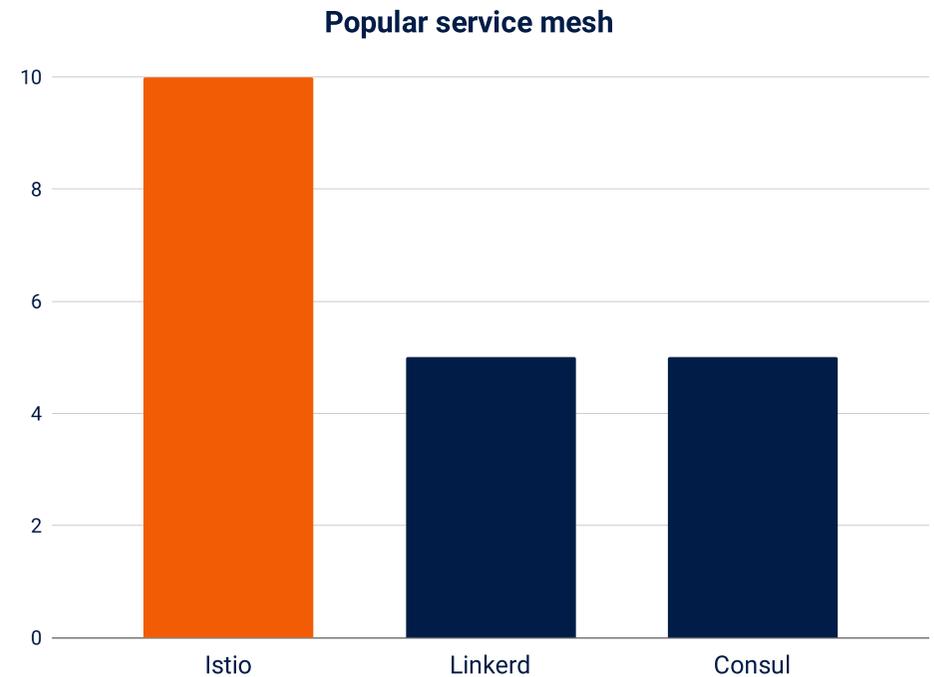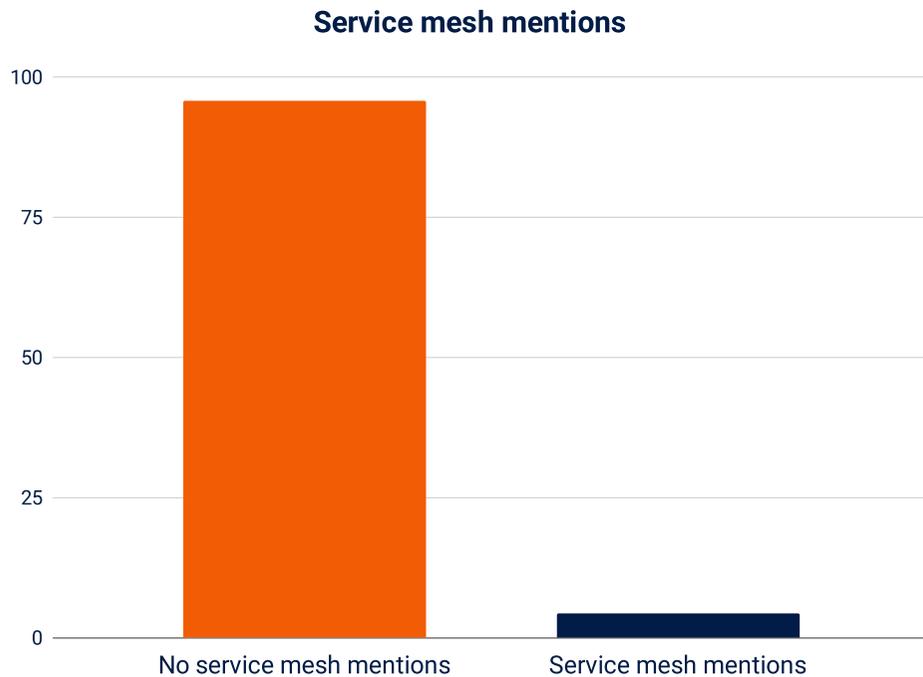
Almost **96%** of the jobs we listed in 2022 did not mention a service mesh.

Things were mostly the same in 2021, wherein almost **95%** of the jobs did not mention a requirement for service mesh experience.

Of the 373 jobs we listed,

- 10 of these mentioned a requirement for Istio, and
- 5 each for Linkerd and Costul

Final Remarks

Hopefully, you got a few pointers into the Kubernetes job market and what the companies are looking for.

Are you hiring Kubernetes engineers?

Kube Careers can help you reach the best candidates in the market.

Get in touch at hello@kube.careers, and we'll help you find a good fit.