

Open:UK 

Kubernetes and the UK



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1. Kubernetes and the UK

1.1 Foreward

Chris Aniszczyk
CTO, Cloud Native Computing Foundation

As the Cloud Native Computing Foundation (CNCF) prepares to host the largest KubeCon ever held in Europe this month, in London, I am writing to reflect on a momentous occasion for both Kubernetes and the CNCF.

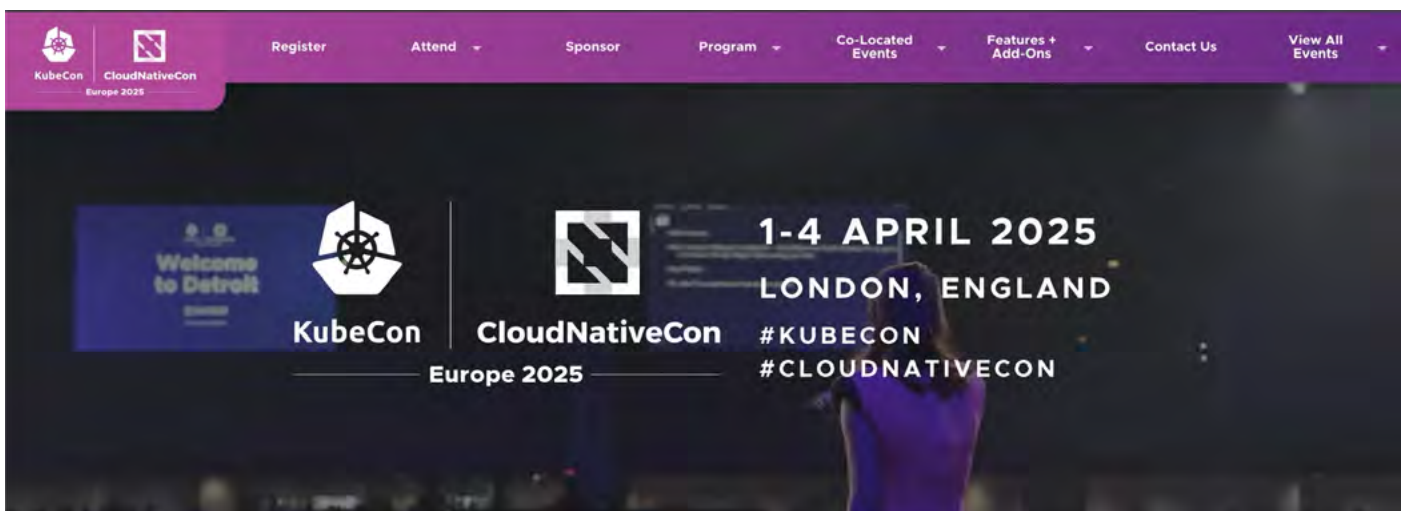
This event coincides with a period of celebration: Kubernetes marked its 10-year anniversary last year, and this year, the CNCF commemorates a decade of remarkable success. Since assuming the role of the inaugural Executive Director of the CNCF, I have witnessed firsthand the transformative impact of Kubernetes in democratizing open-source cloud computing. This technology has expanded accessibility and scalability, fostering a truly global community that transcends individual companies and nations.

It is fitting that London serves as the backdrop for this milestone. The city hosted the first ever European KubeCon in 2016, cementing the UK's significant role in the origin story of KubeCon and the broader cloud native movement.

Through this report, I hope you see the outsized influence the UK has had on the formation and growth of both the CNCF and Kubernetes.

The country ranks among the top five contributors across all CNCF projects, and early visionaries, such as original CNCF Technical Oversight Committee (TOC) member Alexis Richardson, played a pivotal role in shaping the organization's technical strategy.

Though the CNCF is just 10 years young, we remain in the early stages of a global cloud native transformation, with much more progress to come.



1.2 Celebrating the UK community

**Amanda Brock,
CEO, OpenUK**

I celebrated Kubernetes 10th anniversary in London in June 2024, trying to rise to the heights of the UK's Kubernetes and Cloud Native community.



It was a pleasure to bring together some of the people whose inputs have positively and significantly impacted the formation, growth and evolution of Kubernetes, Cloud Native and its communities.

There are hundreds of people across the UK whose contributions have enabled or enhanced Kubernetes and a long list of companies formed behind those creators, like Jetstack, Weaveworks, Syntasso and ControlPlane.

A list of projects that have been critical to the evolution of Kubernetes like Cert Manager, Flux and Syntasso's Platform Engineering Model, which are explored throughout this report.



I often refer to this Kubernetes community as open source's “Gen2”. These individuals generally become engaged in open source because of the quality of the technology. They may well have engaged with the technology before they really understood the nuances of open source software. Often their learning about open source evolved through their engagement with Kubernetes. The strength of the technology was their point of engagement and critical to it. “Gen1”, the Linux generation, are a very different group. Their open source engagement was a very conscious decision and groundbreaking in its time. They were disruptors.

This “Kubernetes Generation”, is essential to open source and we at OpenUK have always recognised that engagement with this generation is important if not critical to the success of any open source organisation today. That this group and its strength held the future success of opens source.

Some of our UK-based Kubernetes community gathered in London at RedHat’s beautiful summer terrace in their London Innovation Labs, in Monument for the 10th birthday party. With almost 100 gathered guests we gave Kubernetes the best party a software package could have and even made the global reporting of the birthday [Kubernetes parties in The New Stack](#).

Monument is an area of London named after the monument - a pillar with a golden flame on top commemorating the Great Fire of London. That fire began in a bakery in the year 1666. Bakery goods and flames featured heavily in our celebrations at RedHat, but we managed not to emulate the events of 1666 in 2024, despite Matt Barker’s best efforts.



Trying to explain to my local baker who made the cake who (what) Kubernetes was and that yes, it was unusual for a software package to have a birthday celebration let alone a 10th one with a cake, was a little surreal.



Of course the reality is that whilst Kubernetes is a software package its made up of the people who make the code. Not only do they contribute the code but they set the tone, and form the community around it. In the UK they punch well above their weight in delivering and contribution to Kubernetes and have benefited hugely from the good work of the CNCF in building a diverse and strong community.

Some of the key people, we wish to recognise include Alexis Richardson, Andrew Martin, Carla Gagini, Cheryl Hung, James Laverick, Justin Cormack, Katie Gamanji, Kat Cosgrove, Liz Rice, Nick Jones, Paula Kennedy and Ian Miell and the organisers of Kubernetes Community Days in the UK who are not already listed, Adrian Mouat, Danny Abukalam, Chris Kranz, Lewis Denham-Parry, Josh Michielsen, and Matt Slane. These are a handful of the names of the hundreds of people whose contributions and commitments have been critical.

As the data in this report shows, the UK is the 4th biggest contributor globally to Kubernetes, hosts a community of leaders in the Kubernetes landscape far greater than a country of its size ought to and is the home of the current number one contributor.

So it is only fitting that we launch this report at KubeCon + CloudNativeCon Europe 2025 which takes place in London for the second time, in London, the home of the first European KubeCon.

2. Early days

2.1 The rooms where it happened

Alexis Richardson
CEO, ConfigHub

I'm in Hoxton Square on a late summer's day in 2014. From early clubbing days this place has been my second home - and the best place to build tech in London. RabbitMQ was born here - my first, and massively successful, open source cloud product. Now, after an acquisition and leading product teams in US big tech, I'm ready to do it all again. In London of course.

I'm waiting to meet Alex Polvi. He is the young CEO of CoreOS, the container company, working with Google on Kubernetes. This "Linux of the cloud" is introducing practical ways to standardise and automate cloud services. Up to now you needed cash for a team of experts, if you wanted to build serious cloud applications or data analysis. That barrier is going away.

My team is building a network for Kubernetes called Weave and Alex wants to meet us. We are speaking at the same event - Container Camp, which is packed. Bright eyed developers all want to be part of the cloud's next big thing. We are all in thrall to the magic of open source.

Alex is all sunglasses and gleaming teeth. He badly needs a coffee and we walk to the Hoxton Hotel. "We need more open source tools", he says as I drink my flat white. "But they are being built by cool startups like Weaveworks and CoreOS. If we don't work together it will be a mess and leave the market to be locked up by a big player. I think we need one big tent". We draw big tents on napkins and I make a list of tools we can share. The one name that is missing is Google.



Six months later: February 2015. The weather is awful - a London special. My friend Rob has dragged me across town to Google London to meet John Wilkes, a veteran Brit who is building their cloud. I ask John if Google intends Kubernetes to be "for everyone like Java or Spring, or for just a few big companies" and then list notorious industry failures. John is very tall and bends over to hear more. He says nobody has asked this question before.

How can I help? "John, Kubernetes users will want better tools to manage all the cloud functionality that Google is integrating here. There is a whole ecosystem of companies and people making open source today - but we need to join it up somehow". Providing examples gets me some credibility and - more important - a crucial introduction.

Craig McLuckie is the product lead for Kubernetes at Google. He is very intense after a day with the London investment banks (editor: :he is always very intense!). So I put a four pack of Neck Oil by Beavertown on the table. We are sitting inside Shoreditch Works, the co-working space that Weaveworks uses with Redmonk - another open source leader. The shoe drops - Craig wants me to help him move Kubernetes into an open source foundation.

A Foundation?

Imagine if Amazon, IBM and Google could stop fighting and collaborate on software that matters enough. This is how the Web (WWW) was made, and then Linux. We agreed that cloud native computing can be like this – and the world needs a “neutral home” for the main projects. This would bring customers, users, big vendors and startups together. There would need to be rules and regulations to make it free and unbiased - an “open ecosystem”. The right rules create trust and that makes it worth people’s time to share work, market solutions, and sponsor online and real world activities. This is how we build a global community.

March 2016. Kubecon London is wrapping up. I am on stage with Google to announce the CNCF - Cloud Native Computing Foundation. This is it. And we have a big plan for how to fill the tent around the Kubernetes flagpole – I’ve already got a commitment from Prometheus in Berlin and tentative nods from three other international projects. I know we are going to win.

Ten years later – the biggest open source conference in the world is here next month. Come and see for yourself. This world has grown and Kubernetes has found a massive new niche, or rather a new industry context - it’s now the platform of choice for AI workloads, as we embark on the biggest tech infrastructure buildout in history (again).

KubeCon 2016, London



2.2 The early days, Jetstack, and building a meetup

Matt Barker
VP, Venafi and Founder, Jetstack

As a salesperson at Canonical, I was always trying to figure out how to better serve my customers and add value.

In 2008 the virtualisation hype was in full swing, but I was very taken by the idea of going even lower level, and selling Linux ‘containers’, which I’d learned about from a few engineers at Canonical who were instrumental in the creation of [LXC](#). Unfortunately the challenges associated with operationalising it meant I struggled to get traction for this internally. I never forgot that conceptually, at least, it seemed like a winner!

Fast forward to 2013 when I was at MongoDB. I started to learn of a new technology called Docker and how revolutionary it was. On looking into it, I was flabbergasted to learn that it used LXC as its execution environment. Although Docker looked like interesting technology, I knew that selling ‘containers’ would be hard, and the real value would be in the operating system that could host it, or the orchestration system around the outside. A bit like what I was trying to get traction for at Canonical. I decided to watch out for startups doing something like this.

Later that year, I came across CoreOS, and was very excited to learn that their plan was to build an OS and management system around Docker. At this point I realised I had to join CoreOS as a way to embrace the container ‘movement’.

After multiple emails and messages, I managed to get through to their founder Alex Polvi. He told me I needed to interview with their director of Business Development called ‘Kelsey Hightower’. That seemed to go well, and I was re-introduced to Alex with the email:

“Alex,

I had the chance to speak with Matthew last week regarding a possible sales position in the UK representing CoreOS. Matthew seems to really know our space and is currently working at MongoDB leading up their sales organization in the UK.

I think it would be a good idea for you two to chat at some point, so Alex meet Matthew. I’ll let you two take it from here.

Also, I’ve attached Matthew’s CV for your review.

--
Kelsey Hightower
CoreOS
Director Business Development”

I learned that Alex would be coming to London later in the year to a new event called ‘Dockerconf’, and we planned to meet.

In the meantime, I was busily reading as much as I could on the space. I had been boring friends at MongoDB about the revolutionary ‘new wave’ of containers that was about to hit us. One announcement that I was pointed to by my pre-sales engineer, Matt Bates was a new project called ‘Kubernetes’ that had just been open sourced. As I started to read into it, my jaw dropped.

The stats spoke for themselves:

- Google started and stopped 2bn containers a week, using Borg (internal version of Kubernetes)
- Not only were Google using containers in production for stateless systems, they were also using them for stateful systems

This was a huge moment for me, as I realised how big of a thing Kubernetes was going to be, as it had a proven track record of scale inside Google.

At this point I resolved to either get a job with CoreOS, or I burn the bridges and start a company around Kubernetes.

In September 2014, I met a motley crew of people in the lobby of the Hoxton Hotel Shoreditch to talk ‘containers’. It consisted of Alex, Kelsey, Alexis Richardson, and a few others I can’t remember. That was a bittersweet meeting, as on one hand, I realised I was on the right track, but on the other I was told that if I wanted a sales job with CoreOS I’d either have to move to the US, or wait a couple of years until they had grown to expand to new territories. At that moment I decided to start planning my resignation and think of company names. In March 2015, Jetstack was born.



After a year or so of hard graft with Jetstack, in early 2016, me and my co-founder Matt Bates were at a point where we were able to hire our first engineer. We decided to pick open issues in the Kubernetes project as a way to test interviewees, and the automation of Let’s Encrypt for certificate management was chosen with a candidate called Christian Simon.

We met with Christian on a Friday at the Victoria Pub in Paddington. By the next Tuesday he came back to us with a prototype he was calling ‘Kube Lego’.

We instantly hired him, he joined, and we open sourced the project. Within weeks, it had taken off. Brendan Burns, one of the co-founders of Kubernetes tweeted to say it was ‘one of the best examples of a cluster add-ons he could have imagined’, and we were getting contacted from companies like WeWork, Bose, and Tesla.

Fast forward a couple of years, and we re-launched the project as cert-manager, led by James Munnely. Thanks to his hard work and stewardship, this project has gone on to become the de facto standard for certificate lifecycle management in Kubernetes.

We ended up donating the project to the CNCF in 2020, and in 2024 cert-manager **graduated**, to sit alongside projects like ISTIO, SPIFFE, and Kubernetes itself! This was a proud achievement, and a worthy outcome to the Jetstack story.

Success of Cert-Manager

Cert-manager gets around 500M downloads per month for each image on Quay.io. It is the 2nd most downloaded image after the openshift installer. That is around 200 image pulls PER SECOND. Assuming approximately 40MB per image, that is about 80Gbps constantly. We have 4 images, so that means we are constantly pushing 320Gbps of data on average, all the time. Mind boggling numbers!



500M

Downloads per month
for each image on Quay.io

200

Image pulls per second

Figure 1
Source: Quay.io

In March 2025, **Jetstack is 10 years old.**

2.3 The Docker Story

Justin Cormack CTO, Docker

Having created the container ecosystem, and very much influenced how the ecosystem thought about containers, Docker played a central part in the growth of the broader cloud native ecosystem. I joined in 2015, when our (UK) startup Unikernel Systems was acquired by Docker.

Kubernetes had been in early development for a few years, while Google took the ideas from their internal container tool “Borg” and refocused their work around the ecosystem that Docker had built. This involved rewriting it in the Go language shifting from Java, as Docker had influenced the ecosystem around language choice too (see my talk for more on how that happened).

At one point Google came to Docker and asked if they could put Kubernetes into Docker’s GitHub organization; I wasn’t in that meeting but we said no, which would have been rather different

In that period Docker was, initially reluctantly, forced into creating standards, and created OCI (Stephen Walli did that work for us), although it really was a “write up how the Docker stuff works from our code and GitHub issues” standard at the time. This was enough to help bootstrap the Docker ecosystem.

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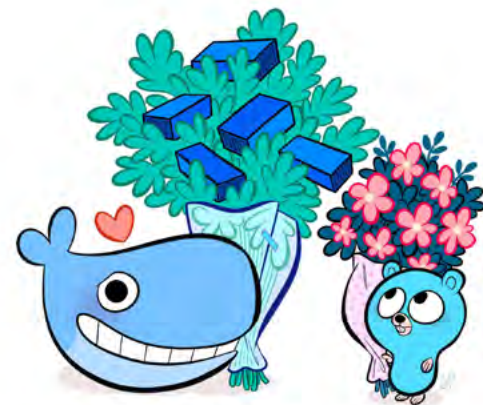
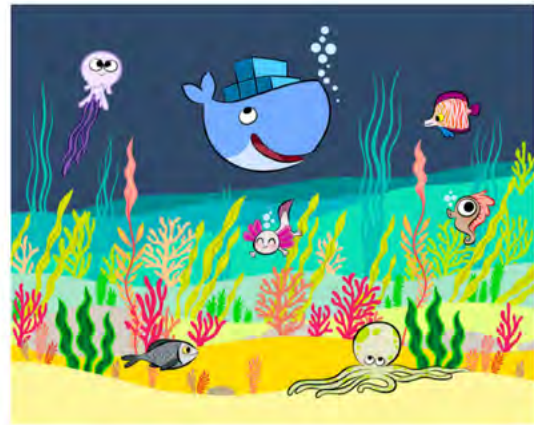
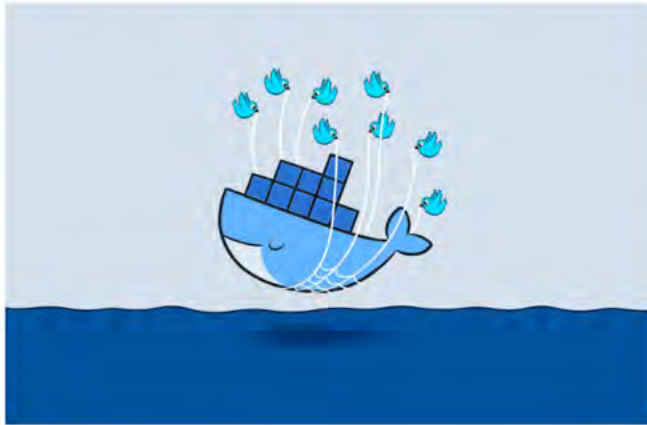
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2016 was probably the peak of Docker going alone and being isolated from the Kubernetes community; after its having been forced to standardise. It was trying to consolidate its position. Rather than doing open development Docker did a lot behind closed doors. In mid 2016 Docker “Swarm” was released as an alternate orchestrator to Kubernetes. This was when I started spending more time working with the Kubernetes community, which was growing in London, trying to understand what was driving adoption.

In late 2016 Google came to talk to us again, with discussions around the Kubernetes ecosystem. At this point Kubernetes used Docker as its runtime, but with Docker now including a whole orchestrator they saw this as bloated, and Google were not using most of even the original Docker features as Kubernetes implemented its own networking and so on.

We agreed with Google to take “containerd” which was by then a small library that wrapped some of the core container management functionality and to build this into a much more capable core layer that could act as a runtime for both Docker and Kubernetes.



At Kubecon Berlin in 2017 I presented the new containerd, and we donated this to CNCF as a neutral project. This became the most common runtime for Kubernetes, and an ongoing successful project (Red Hat built their own alternative but that is another story).

The containerd project was the start of better relations between Docker and Kubernetes in some ways. However, Docker was still pretty committed to Swarm, and internally a lot of people were not aligned with Kubernetes. I personally was aligned with the Kubernetes group, and had support from Solomon Hicks, the Docker founder, who saw the ecosystem momentum. At the Berlin Kubecon I met with Alexis Richardson and Ilya [] in a beer hall where we collaborated on Kubernetes on "LinuxKit". This was the internal Linux runtime in the Docker Desktop, and which went on to become the first version of Kubernetes on the Docker Desktop.

That became our first public Kubernetes piece of work we did at Docker and very much a hint of what was to come later that year. The public announcement of Docker supporting Kubernetes in the enterprise product was announced later that year, in October 2017.

That announcement saw Docker become an enterprise Kubernetes vendor, selling our products against Red Hat's "OpenShift" and CoreOS (bought and shut down by Red Hat) and other suppliers, in a brutal early market.

By 2019 Docker had clearly lost that battle, and by late 2019 Docker was restructured and recapitalised as a developer company.

2.4 Securing Kubernetes

Andrew Martin
CEO and Co-Founder, ControlPlane

It was 2013 when the first “Hacker News” post for Docker emerged. I was sitting in east London, consulting for News International, and only our project lead seemed enthused. The team believed new technologies would have security bugs. Yet beneath that initial scepticism, it was clear that the new software development paradigm had just landed.

The container revolution had begun.

Soon after, working at Visa, building secure payment, we used Docker to test the development of payment flows. Its utility was immediately obvious, but we couldn’t use it in production. No regulated organisation would put this shiny new technology into production without watching others battle-test its security features first. And they were right. As fast moving projects react to an influx of users inevitably the occasional line of code slips. Everybody waited to see when.

By 2014, British Gas had the foresight to build a full machine learning system on Docker v0.8. From data ingestion to training and inference, the ML model preempted costly in-person boiler repairs. But with containers still in their infancy — no secrets management, no temporary file mounts, no Linux Security Module support, and the ongoing debate of whether Docker or systemd should run the containers — the security ecosystem was fragmented. We cobbled together different tools to discover services, re-route network connections, and enforce security controls.

It was there that we discovered the momentous immutability of CoreOS, an operating system designed to run containers. I had the pleasure of meeting CEO Alex Polvi as we presented at [the inaugural Container Camp](#), and he came into our offices and pitched a “Secure the Internet” vision of immutable infrastructure and containers, and I was sold.

That CoreOS team would go on to change the cloud native landscape across many other companies, and was the first to ship the Sysdig Secure kernel module by default, adding security and observability features with a kernel module.

For a year, systems were built on [CoreOS Fleet](#) using distributed systemd and some [rkt](#) containers alongside Docker, but there were rough edges. The tooling didn’t mesh tightly, there were many ways of achieving the same goal. But Google had been running a form of containers for years with Borg and their cgroup patch to the kernel in 2008, and they announced the Kubernetes project to open source their learnings — this solved our distributed uptime issues, and the race between the orchestrators of the time was on: Kubernetes, Docker Swarm, Mesos, and Nomad.



[Photo by Cybernetist](#)

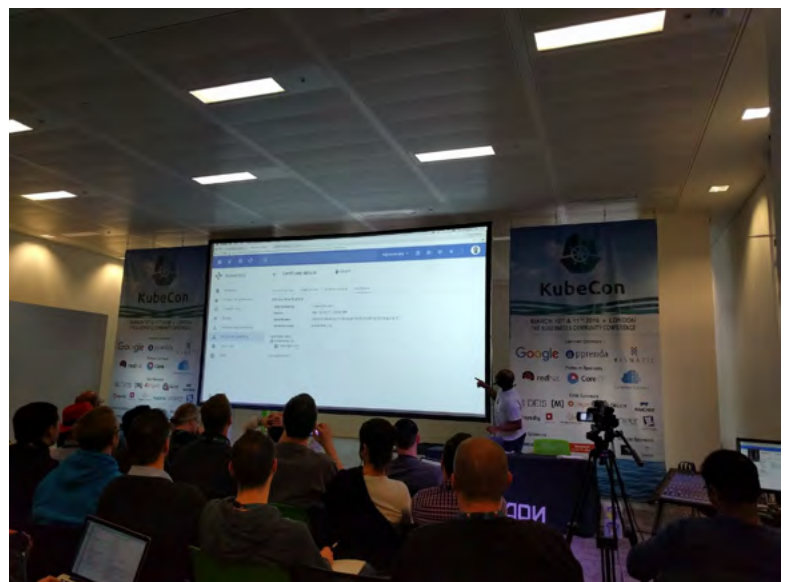
As Container Camps flourished globally, luminaries from the nascent container scene shared their journeys, teaching the distributed systems principles that made Kubernetes both inordinately powerful and more complex. But one problem persisted: securing Kubernetes and containers remained challenging. I took that problem to the UK Home Office in 2016, where the core team was deploying Kubernetes v1.2 for the UK Government. Working with air-gapped systems, we worked to secure our Kubernetes infrastructure to critical national security requirements. The market gap was clear. This revolutionary technology had all the potential for building secure, modular distributed systems, but none of the real-world usage. And Control-Plane was founded in 2017, with the mission of advancing Kubernetes security.

The first KubeCon EU arrived in 2016, with Kelsey Hightower’s crowd-raising chant of “I say Kube, you say Con!” bringing cloud native resolutely to London.

Talks from end users including Ivan Pedrazas at the UK Government and the New York Times brought confidence that this technology was ready for battle testing.

KubeCon
MARCH 10TH & 11TH 2016 • LONDON • THE KUBERNETES COMMUNITY CONFERENCE

Thursday, March 10		KIC & BACKSTAGE	
Registration		KIC & BACKSTAGE	
TIME	TOPIC	TOPIC	TOPIC
09:00 - 09:30	ECOSYSTEM	MICROSERVICES / DEPLOYMENT / MONITORING	NETWORKING / STORAGE
09:30 - 10:00	SMART	K17 IaaS	CMD
10:00 - 10:15	KEYNOTE: Opening Remarks, Kubernetes Update		
10:15 - 10:30	KEYNOTE: Kubernetes State of the Union		
10:30 - 10:45	Microservices Design for Resilient Microservices	Kubernetes and the Operational Tool	Cluster Admin Tools for Kubernetes
10:45 - 11:00	Application Observability	Application of Using Helm with Kubernetes	Container Security
11:00 - 11:15	Microservices Security with an AI Kubernetes approach	Container Security Plugfest	AI for Ops
11:15 - 11:30	OpenStack: Cloud Gateway	Container Security Plugfest	AI for Ops
11:30 - 11:45	Cloud & Hybrid Stack	USE & BACKSTAGE	USE & BACKSTAGE
11:45 - 12:00	Building Open Stack with Kubernetes	Lightweight Container Engine for Edge	Full Kubernetes Deployment: Prometheus, IaaS and Kubernetes
12:00 - 12:15	OpenStack: Cloud Gateway	Container Security Plugfest	AI for Ops
12:15 - 12:30	Multi-Cloud Kubernetes	USE CASE	USE CASE
12:30 - 12:45	Container Security	USE CASE	USE CASE
12:45 - 13:00	Building an Open Stack	USE CASE	USE CASE
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The Kubernetes London meetup started with a meetup in the MOJ, with Milos Gadjos, Peter Idah, and Ivan running the event for many years.

Their notable hackathon demos including Christian Simon’s kube-lego, the precursor to cert-manager, for which JetStack would later be acquired by Venafi.



Photo by Cybernetist

Into this new world, WeaveWork’s FluxCD and the GitOps pattern emerged, inverting control of CI/CD by pulling instead of pushing updates, and removing deployment keys from CI/CD infrastructure. This pattern would soon become the industry standard for secure deployment, and later spawn controllers from all the cloud providers, continuing the Infrastructure as Code movement into Security and Policy as Code, and **Hardening Git for GitOps** extended its relevancy as supply chain attacks hit major providers over the next few years.

London startup **KataCoda** (later sold to O’Reilly by Ben Hall) built educative materials and security lessons for running on Kubernetes and Docker, and I started training users for Docker Inc., and trawling around UK conferences and meetups, demonstrating security flaws to raise awareness of detection, prevention, and safe usage. At KubeCon Seattle, ControlPlane presented “Building Security into Kubernetes Deployment Pipelines”, and in a quiet room off the beaten conference track I attended the inaugural meeting of what would become the **CNCF’s Technical Advisory Group on Security**, led by Sarah Allen and Jeyappagash JJ.

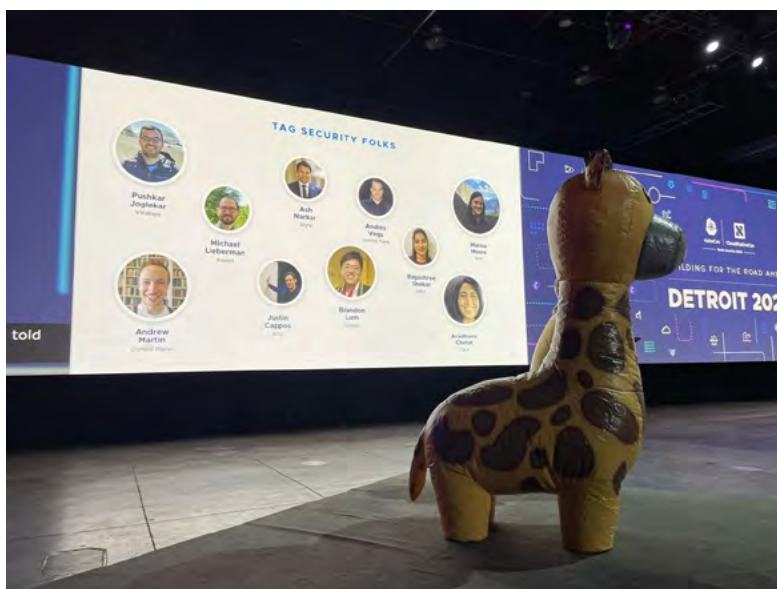
With fewer than 10 people in that room, they sparked a community movement that would bring confidence to Kubernetes deployment for mission-critical systems, in tandem with the code-focused Special Interest Group on Security (SIG Security), and eventually the Open Source Security Foundation (OpenSSF). Rory McCune and Liz Rice were instrumental in the group and its interaction with the CNCF Technical Oversight Committee (TOC).

As luminary individuals and organisations joined TAG Security, I had the privilege of learning from their collective expertise, and starting the EMEA chapter from the UK. TAG Security built **a series of white papers** together, helping to codify cloud native security practices, and focusing on secure Kubernetes systems and container deployments. The group’s zero-day events at KubeCon proved so popular they expanded to two days, and eventually their own CloudNativeSecurityCon. And throughout it all, demonstrating real-world vulnerabilities and attacks with a pragmatic focus on developer experience helped to bring startups and enterprises together and swell the wave of Kubernetes adoption.

From these community endeavours, ControlPlane threat modelled Kubernetes for FS-ISAC to build the foundations for financial services users, built a Kubernetes Capture the Flag (CTF) simulator to help people learn Kubernetes for both complex production debugging, and collaborated on building the CIS Benchmarks for Kubernetes. The CTF simulator toured UK conferences from KCD to BSides, running free workshops to spread the word of secure cloud native.

Kubernetes use and configuration demands collaboration between users, cluster operators, and security teams — groups unaccustomed to working together. “Shift left!”, the cry of application security teams for the last decade, now extended to DevSecOps pipelines for containers, infrastructure, and entire systems. Cloud native security practices re-formed teams around new operational models, and security drew ever closer to infrastructure, decreasing margins for error and hardening enterprise systems.

As co-chair of TAG Security, we consistently assisted projects with their CNCF graduation, which involved joint and independent security reviews of emerging software: Cilium, FluxCD, Flatcar Linux, Envoy, and many others were collaboratively reviewed, which enabled the projects to apply for CNCF project graduation.



Kubernetes' great innovation has been its developer enablement and focus. Having operations teams quickly and uniformly set up new clusters and manage applications allowed developers to transfer their knowledge into their next project and role, reducing the barrier to entry and bringing the industry together around new technical patterns and practices. Dependency analysis and vulnerability awareness, immutable container practices, and cloud native deployment practices spread, decreasing our attack surface and shining light into dark, unaddressed corners of the previous generation of monolithic, lifted-and-shifted cloud applications.

This uniformity enhanced security, as knowledge was shared and commonalities transferable between projects — we know not to run containers as root, to enforce network policy and admission control, and to scan our containers. That focus on enablement meant Kubernetes could not always be easily secured by default, with security features being added to the project as necessary.

I was lucky to co-author *Hacking Kubernetes* for O'Reilly, bringing together the learnings of the wonderful people I'd had the opportunity to work with in a single definitive tome, and drawing a line under Kubernetes' perceived insecurity. Live demos and reproducible security examples made one of the highest-pressure talks of my life, at KubeCon Valencia 2022.



Years of persistent hard work from core contributors, the community, and end users have given us a hardened container orchestrator. It is flexible enough to be used everywhere from niche specialised deployments through to secure production systems at the massive scale of telecoms, government, and financial services.

3. Timeline: Infographic

2014

Kubernetes created - June 6, first commit by Joe Beda

**Meeting in Hoxton Hotel with Kelsey Hightower,
Matt Barker and Alexis Richardson**

2015

**Kubernetes reaches 1.0 and is donated to Linux Foundation's new
Cloud Native Computing Foundation - July 2015**

First KubeCon -November 2015, San Francisco

2016

First KubeCon in Europe takes place in London

2017

**Docker donated containered to Kubernetes at
Kubecon Berlin -Justin Cormack**

2018

Cheryl Hung Director of CNCF Cloud Native Ecosystem

2020

CertManager donated to CNCF by Jetstack

2022

First UK-based Release Lead - James Laverack, Kubernetes v1.24

2023

Platform Engineering Maturity Model donated to CNCF by Syntasso

2024

**Second UK-based Release Lead Kat Cosgrove - Kubernetes v1.30
CertManager graduates from CNCF**

2025

**Tim Bannister the UK number one contributor to Kubernetes - March
Kubecon Europe April - OpenUK Birds of a Feather and Report launch,
recognising the UK based contributors to Kubernetes and Cloud Native**

4. The Evolution

4.1 Platform Engineering and The Platform Maturity Model

Nicki Watt

CTO, Open Credo / Trifork UK

Platform engineering has been gaining traction since around 2020, becoming a key enabler for teams working with Kubernetes and Cloud Native technologies. As a modern discipline, it helps organisations offer higher-level services, streamline processes, and build better tools—enabling engineering teams to deliver more safely, efficiently, and reliably. It also drives initiatives that integrate people, processes, policies, and technology into sustainable, scalable solutions.

One of the biggest challenges has been addressing the socio-technical complexities of platform engineering—looking beyond technology to the interplay of people, processes, and tools. This challenge helped drive the creation of the **Platform Engineering Maturity Model**, originally developed by Syntasso and later donated to the CNCF, where it received its official release in October 2023.

The early versions of the model played a crucial role in creating a space for gathering and shaping insights from a wide range of people and organisations on their platform journeys—what mattered most, what didn't, and what different levels of maturity looked like.

Today, the model continues to evolve as a valuable industry resource, offering a clear, structured framework that defines key characteristics at various stages of platform maturity. By helping teams assess where they stand and visualize what higher maturity levels can offer, it enables them to spot gaps and uncover opportunities for improvement. It remains a guiding force in the growth and evolution of platform engineering across the cloud-native ecosystem.

My engagement with the Platform Maturity Model began as an early reviewer and contributor before its donation to the CNCF. Following its release, I have remained committed to sharing practical insights on how to apply the model in real-world scenarios—contributing through blogs and talks.

Finally, a big shoutout to Syntasso for their pioneering work in this space—their contributions have helped shape how platform engineering is understood and applied today, and of course the CNCF Platforms Working Group who continue to maintain it going forward.

4.2 Cloud Native Computing Foundation

Cheryl Hung

**Senior Director of Infrastructure Ecosystem at Arm,
CNCF Director of Ecosystem (2018-2020)**

In 2015 I left Google after five years as a software engineer, and spent a few months investigating upcoming technologies at developer meetups. One of the rising trends was Docker and containerisation, which was similar to Borg which I had used to deploy software at Google. I immediately recognised the potential for an industry-wide shift, so all companies could build Google-style infrastructure. Just as strong as the technology was the community around it. The events I attended were welcoming and celebrated diversity in keynote speakers, a rarity among technology fields. I was particularly inspired by Aparna Sinha of Google, her authority and technical and business acumen.

As a Google software engineer using Borg but not building it, I was strongly influenced by the end user experience. I recognized cloud native's strengths (resilience, heterogeneous compute) and weaknesses (complexity, storage). I became a developer advocate in order to teach what I knew to others.

I also saw that this was going to be powered by open source, and knew developers valued open source technology with strong communities. I immersed myself in the relevant community by attending, writing and speaking at developer events through 2017.

In 2017 I noticed that there were Cloud Native meetups for Berlin, Paris, Barcelona and so on, and I decided to start my own meetup for Cloud Native London.

My vision was to create a vibrant, inclusive community where professionals could share knowledge and experiences related to Kubernetes, Docker, Prometheus, Linkerd, and other cloud native projects in London. With no speakers, sponsors, or venue, I listed a date on Meetup.com just 7 weeks away and immediately scrambled to pull together an event. The first event attracted an astonishing 120 attendees! The meetup flourished and has become one of London's largest and most active developer communities. It boasts 9500 members and monthly events, reflecting its sustained relevance and enduring influence over 10 years.



As interest in cloud native soared through 2018, I attended DockerCon and KubeCon CloudNativeCon Berlin, Copenhagen, Austin, Seattle and did dozens of interviews, podcasts, talks and panels. Finally I decided that I wanted to be working in cloud native full time, and asked Chris Aniszczyk if there were any roles at CNCF that I'd be suitable for. As luck would have it, they were two weeks away from opening a job search for the first Director of Ecosystem to build out and lead the End User Community.

Over 2018-2020, I developed the End User Ecosystem into a vibrant, influential community which shared insights and strategies on the CNCF projects. Through building relationships with end user organizations and understanding their needs, I created a strong bridge between end users and open source projects, ensuring they were consulted by the Technical Oversight Committee during the graduation process.

I also spearheaded the CNCF Technology Radar, in order to provide insights into the tools end users actively use and recommend. This initiative helped developers refine technologies, guided end users in adopting new tools, and informed media and analysts about emerging trends. By 2020, Tech Radars covering Database Storage, Observability, and Continuous Delivery had been completed.



At CNCF I was handed a list of 77 companies and told to make it into a community. As those building organisations know, it's no easy feat to build trust among a disparate group with no prior collaborations and no ties to each other. My goal was not to lead everything myself, but to identify potential leaders in the community and coach them into leading open source groups around Research, Financial Services, Automotive, Business Value among others. It was a slow process of relationship building, but led to remarkable growth in the End User Community. The community expanded 170% in two years, encompassing renowned brands like Apple, LinkedIn, Pinterest, Salesforce, Spotify, and Twitter. This growth underscored the increasing adoption of cloud native technologies across various industries.

Cloud native technology is pretty mature and stable, so I would encourage the community to keep that feeling of welcoming and invite newcomers to collaborate as much as possible. Dan Kohn, executive director of CNCF, often told me that "Failure is an option" and say yes to new ideas more than no.

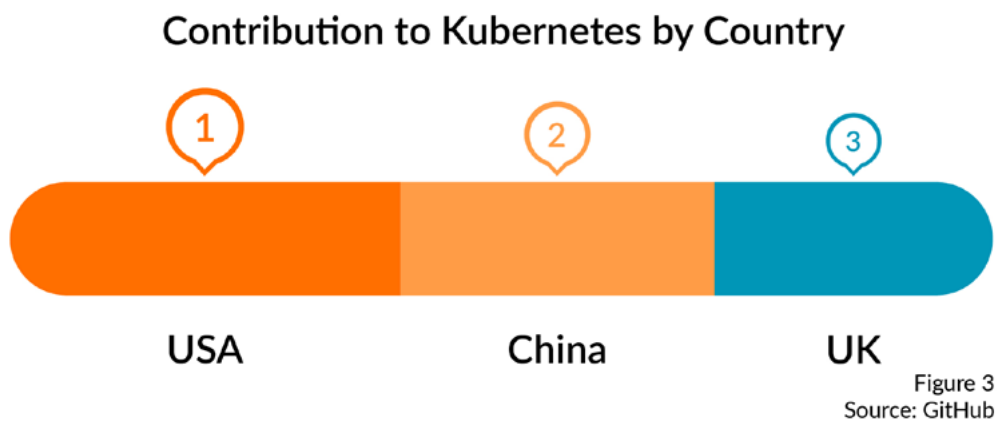
4.3 Cloud Native Foundation Data on UK Contributions

UK Contribution and Contributors

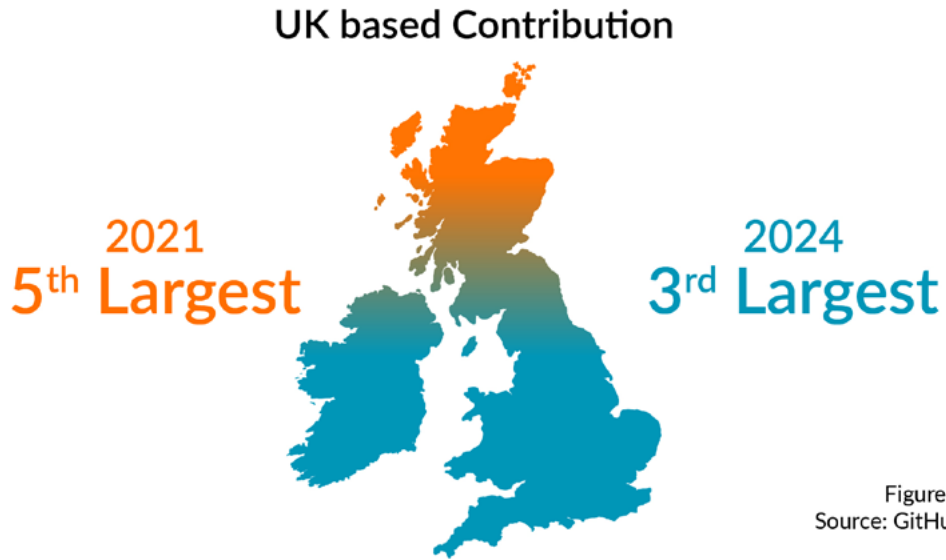
The UK hosts the 4th largest populations of both Maintainers and Contributors to CNCF projects.



The UK is punching above our weight as the 3rd largest contributor of open source code to CNCF accounting for nearly 5.4% of all CNCF GitHub activity in 2024.



We have seen a gradual increase in this across the period of our reporting, where the UK was recognised in 2021 as 5th largest.



When it comes to individual contributions we have seen Tim Bannister, based in the UK, was the biggest individual contributor to Kubernetes over the past year as at March 2025.



4.4 Kubernetes Maintainer, Release Team Subproject Lead, SIG Docs Technical Lead

Kat Cosgrove **Open Source Advocate, Independent**

Releasing a new version of Kubernetes is a complex process involving anywhere between 30 and 40 contributors across several specialised subteams. They work together over the course of roughly 14 weeks, and this work is all managed by a Release Lead. Throughout the release cycle, the Release Lead is ultimately responsible for everything that goes well and everything that goes wrong. They are required to be the public face of the project for their version, for better or worse.

It's a role that requires exceptional communication skills, organisation, technical know-how, risk management, and an intimate knowledge of the structure of the Kubernetes project. Being selected as a Release Lead requires significant experience elsewhere on the Release Team, and the trust of the project at large.

The first Release Lead from the UK was James Laverack who was the Release Lead on Kubernetes v1.24 in 2022. He began his journey on the Release Team in 2022 with v1.18, as a shadow on the Release Notes team. James returned as a Release Notes shadow for v1.19, and was selected to lead the Release Notes subteam on v1.20. He then moved to the Enhancements subteam, first as a shadow in v1.21 and the subteam lead in v1.22. He was then a Release Lead Shadow in v1.23 before being selected as the Release Lead for v1.24.

James named v1.24 "Stargazer," and it included 46 enhancements: fourteen enhancements graduated to stable, fifteen enhancements moved to beta, and thirteen enhancements entered alpha. Two features were deprecated, and two features were removed.

The most impactful of these changes was the final removal of the dockershim, a software shim that had been deprecated in v1.20. The deprecation of the dockershim was a dramatic and highly impactful action, but it was ultimately the best choice for the project. From James's version onwards, Kubernetes users are required to use CRI-O, containerd, or another supported container runtime instead of Docker Engine via the dockershim.

The deprecation of the dockershim is responsible for me eventually joining the Release Team myself, and crossing paths with James. I was a Communications shadow for this release, and I had handled the public damage control after the initial dockershim deprecation announcement caused public panic and confusion. In collaboration with SIG Contributor Experience, I authored a series of blogs and an FAQ explaining the history of Kubernetes and its container runtimes as well as how to ensure you would be ready for the removal of the dockershim, if you were affected at all.

I initially joined the Kubernetes Release Team in v1.23, as a Communications Shadow. After working as a Communications Shadow again for James's release in v1.24, I was selected as the Communications lead for v1.25. I moved around the team a little from here, serving as a Docs Shadow and then Docs Lead, as well as a Release Lead shadow for two cycles before being selected to lead v1.30 in 2024.

I named v1.30 "Uwubernetes," and it consisted of 45 enhancements. Of those enhancements, seventeen graduated to Stable, eighteen entered Beta, and ten graduated to Alpha. Uwubernetes was the first release to feature the merging of two subteams, Bug Triage and CI Signal, into one subteam called Release Signal. This was made possible by radical improvements made to our processes and automation, and resulted in one of the smoothest releases we had run at the time.

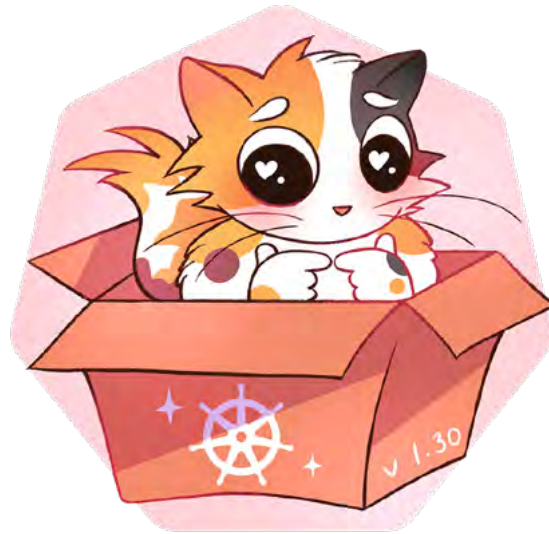


Photo by Kubernetes

After my cycle as the Release Lead, SIG Release leadership created a new Release Team Subproject, and selected me to lead it. Since then, I have instituted sweeping improvements to the Release Team's structure and processes, enabling a more reliable and smooth release cycle. We now have a way to remove and replace inactive release team members mid-cycle rather than forcing a team to work understaffed. One more subteam has also been eliminated, leaving us with only four required: Docs, Communications, Enhancements, and Release Signal. Getting three Kubernetes releases per year into the hands of users is now a significantly more efficient and predictable process, with less work per person required to do it.

4.5 A broader landscape within Cloud Native Computing Foundation

Liz Rice Chief Open Source Officer, Isovalent at Cisco

I remember first hearing about the idea of containers back in 2013, when I was working on a startup that generated online film & TV recommendations. One of our neighbours in the start-up accelerator where we were based told me how this new-fangled thing called Docker promised to revolutionize the way we deployed our code. Within a couple of years, Anne Currie, Ross Fairbanks, and I had co-founded another startup, Microscaling, that explored dynamically scaling containers. We found ourselves part of a vibrant container-related community in London, meeting lots of great people and presenting our ideas at events and meet-ups that were often hosted at CodeNode, close to Moorgate station. Stand-out conferences like ContainerSched and Monkigras attracted all sorts of international luminaries from across the container space. It felt that for once, not all the interesting conversations were happening in Silicon Valley - we were part of a thriving technical community.

That startup didn't succeed but it was the launchpad for me spending the next decade (and counting!) in the cloud native space, specializing in security and, more recently, in the kernel technology eBPF. These were the early days, when it wasn't clear who was going to win the orchestrator wars between Kubernetes, Docker, Mesos, and even Nomad.

The CNCF attracted the big gorillas to the cloud native mission, while at the same time there was a UK-based innovation scene, with projects like cert-manager or Ben Hall's sandboxing environment, Katacoda, being much talked about. Post-meetup conversations led to efforts to standardize container metadata, or to seed ideas for better container networking. The Unikernels group from Cambridge wowed us with their technology, which went on to become foundational for Docker's evolution after their acquisition.

I was invited to co-chair the CNCF's KubeCon + CloudNativeCon events in 2018, covering Copenhagen, Shanghai and Seattle, initially alongside Kelsey Hightower and then later with Janet Kuo.

This was a huge opportunity to host and keynote for audiences of thousands on the giant stages at these events, and reviewing hundreds of talk proposals gave me a deep insight into the projects and technical areas that were exciting across the open source cloud native community.



[Liz & Kelsey on the keynote stage at KubeCon Seattle](#)

When my tenure as KubeCon co-chair was up, I wanted to leverage the knowledge I had built up across all the projects, and a few folks in the community encouraged me to stand for election to the CNCF's Technical Oversight Committee, which is, as its name suggests, the group who oversee the technical projects within the foundation.

I ended up following in Alexis Richardson's footsteps to become chair of the TOC - it speaks to the strength of the UK's involvement in cloud native technology that not only were the first two TOC chairs were from this country, but the committee has continuously had members based here.

5. Conclusion

Dr Jennifer Barth
Research Director, OpenUK and Founder, Symmetry

The UK has played an influential role in developing Kubernetes and the wider cloud native ecosystem from its very inception. The stories in this report illustrate how UK-based individuals, startups, and communities helped shape a global open source movement—often providing the initial spark for new collaborative models, essential tooling, and forward-thinking practices. From early conversations in hotels and cafes to the first European KubeCon being located in London, these accounts attest to the UK’s ability to blend technical expertise, entrepreneurial spirit, and a culture of openness and collaboration that resonates worldwide. Alexis Richardson and Matt Barker’s narratives underscore just how formative the UK presence was in Kubernetes’ origin story. Alexis’ recollection of brainstorming with CoreOS leaders in London, sketching out a “big tent” approach on a café napkin, and then introducing Google’s Kubernetes team to a broader open source network highlights the country’s critical bridging function. The subsequent creation of the Cloud Native Computing Foundation (CNCF), with Alexis as its first technology chair, reflects how the UK provided not only technical contributions but also the initial organisational scaffolding.

Matt Barker and Justin Cormack reveal a parallel path: a push among London technologists and entrepreneurs to adapt container technology into real-world solutions. In Matt’s case, his passion for container orchestration led him to co-found Jetstack, ultimately producing the cert-manager project—now widely used for certificate management in Kubernetes. Justin’s experience at Docker shows how British engineers helped shape container standards and runtimes from the inside. Despite Docker initially charting its own course, UK-based contributors—whether they were forging alliances, creating new standards, or exploring advanced security features—ensured that Docker and Kubernetes would eventually collaborate productively.

Similarly, Andrew Martin’s perspective on Kubernetes security illuminates how early adopters in the UK recognised both the promise and the potential pitfalls of containerisation. Even in the earliest days, regulated organisations were tentatively exploring Docker-based architectures, carefully monitoring security risks. Andrew’s work at ControlPlane brought advanced threat modelling and best-practice guidance, showing that the UK’s influence extended beyond building the technology to also safeguarding it. By working closely with governmental departments, major enterprises, and open source security groups, the teams effectively ushered in a “shift left” philosophy—where development, operations, and security teams collaborated from the start.

All of these accounts speak to a shared trait: the UK’s ability to “punch above its weight” in open source and in Kubernetes and CNCF. Despite having a smaller population than some of the other major contributors, the UK has grown its standing on the global stage—rising from fifth to fourth among Kubernetes contributors overall.

On a per capita basis, the UK stands even higher, reflecting a remarkable density of knowledge, expertise, and community-driven activity. The fact that Tim Bannister, based in the UK, is today recognised as the number one individual contributor to Kubernetes underscores how a passionate grassroots community can translate into world-class impact.

Of course, the underpinnings of this success are grounded in a strong and welcoming community ethos. From the early days of container meetups, those involved emphasised inclusivity, open collaboration, and transparent governance. Through Cheryl Hung’s efforts to build the CNCF’s End User Community—and Liz Rice’s leadership roles on the CNCF’s Technical Oversight Committee and as a KubeCon co-chair—UK-based individuals have continually fostered an environment where new contributors and experienced professionals alike can share ideas and shape the cloud native roadmap. They have also embraced the responsibility of guiding an ever-expanding ecosystem.

Today, the UK not only continues to rank as a top contributor in absolute terms, but on a per-person basis outstrips many larger nations in terms of both code commits and thought leadership. This combination of early leadership, consistent growth, and strong community culture sets a powerful example in open source,

reminding us that true impact springs from creativity, cross-company collaboration, and an unwavering commitment to openness. As Kubernetes enters its second decade—and ventures into domains like AI, edge computing, and beyond—the UK is poised to remain a dynamic, influential force, shaping how cloud native technologies evolve for years to come.

We look forward to seeing the outputs of these UK leaders in their global collaboration.

6. Formalities

6.1 Contributors

Alexis Richardson

Alexis Richardson is co-founder and CEO of ConfigHub, a new company making cloud native applications simpler to operate. In the 90s he was a proprietary quant trader at Goldman but left to found a software company. RabbitMQ was an early success whose acquisition made him a key member of the cloud platform team at VMware and then Pivotal. There he led the initiative to regenerate Spring into Boot, Cloud and Data products. In 2014 he founded Weaveworks, an early Kubernetes platform company that created GitOps, FluxCD and Weave. Alexis helped get the CNCF going and was the first technology chairman.

Andrew Martin

Andrew has an incisive security engineering ethos gained building and destroying high-traffic web applications.

Proficient in systems development, testing, and operations, he is at his happiest profiling and securing every tier of a cloud native system, and has battle-hardened experience delivering containerised solutions to enterprise and government.

He is co-author of Hacking Kubernetes published by O'Reilly Media in 2022, <https://www.oreilly.com/library/view/hacking-kubernetes/9781492081722/>

He is founder and CEO at <https://control-plane.io>

Amanda Brock

OpenUK CEO, Amanda's built one of open source's most recognised and impactful organisations. Executive Producer of State of Open Con (2023- 2025), Amanda's a globally sought-after keynote speaker. A lawyer with 25 years' experience, 5 as GC of Canonical, she's been instrumental in shaping open source's legal frameworks, as she was internet law during the early 2000's. Regularly contributing to tech press, she edited 'Open Source: Law, Policy and Practice', (2022).

Recognition: Computer Weekly 50 Most Influential Women in UK Tech (2023, 2024); Computing IT Leaders 100 (2023, 2024); Lifetime Achievement Award WIPL (2022); Women Who Will Changemaker (2023); INvolve Heroes (2022, 2023); Novi Awards (2024) and Ambassador, Open Charge Alliance.

Advisory Appointments: UK Cabinet Office Open Standards Board; UKRI Digital Research Infrastructure; UKRI Exascale; KDE; commercial boards – Mimoto, Scarf, FerretDB and Space Aye; and is Fellow Open Forum Academy; Distinguished Fellow Rust Foundation; and European Representative, OIN.

Cheryl Hung

Cheryl Hung (oicheryl.com) is a Senior Director and Head of Ecosystem at Arm. She is also a startup advisor and thought leader in open source and ecosystem strategy.

She founded the Cloud Native London meetup and grew it to over 9000 members. She was VP Ecosystem at the Cloud Native Computing Foundation and led engineering teams at Google and Apple.

Cheryl holds a Masters degree in Computer Science at the University of Cambridge.

Chris Aniszczyk

Chris Aniszczyk is an open source technologist with a passion for building a better world through open collaboration. He's currently a CTO at the Linux Foundation focused on developer experience and running the Cloud Native Computing Foundation (CNCF). Furthermore, he's a Partner at Capital Factory where he focuses on mentoring, advising and investing in open source and infrastructure focused startups. He has a strong passion for supporting open source founders and entrepreneurship.

Dr Jennifer Barth

Jenn has more than 15 years of experience leading independent research on the intersections of emerging technologies and socioeconomic change. She provides companies with independent thought leadership and media engagement opportunities on global issues impacting and shaping our current and future technical-social lives. Her work spans the digital through to social and economic change. She has looked at sustainability, workforce skills and organisational competitiveness strategies through and beyond the pandemic with Microsoft and many other big and small organisations and works as the Chief Research Office researching the role of open source software and its potential to fuel the circular economy with OpenUK. She has experience working on the human impact of artificial intelligence (AI) through fieldwork experiments with IBM Watson, Microsoft and other providers. She is skilled at blending research methods and working with people to bring to life the stories behind numbers. Dr Barth earned her DPhil in Geography from the University of Oxford.

Justin Cormack

Justin Cormack is CTO of Docker, and serves on the Technical Oversight Board of the Cloud Native Computing Foundation. He has been involved in the open source community for many years, and has worked in publishing and financial services as well as software startups. He has been focusing on supply chain security and container and cloud native software delivery as an engineer and executive. He is based in Cambridge.

Kat Cosgrove

Kat is a Developer Advocate focused on the growth and nurturing of open source through authentic contribution. In particular, her specialties are approachable 101-level content and deep dives on the history of technology, with a focus on DevOps and cloud native. She was the Kubernetes Release Lead for 1.30 Uwu-kubernetes, and currently serves as both a Release Team subproject owner and SIG Docs tech lead.

Liz Rice

Liz Rice is Chief Open Source Officer with eBPF specialists **Isovalent**, creators of the **Cilium** cloud native networking, security and observability project. She was Chair of the **CNCF's Technical Oversight Committee** in 2019-2022, and Co-Chair of **KubeCon + CloudNativeCon** in 2018. She is also the author of **Container Security**, published by O'Reilly.

She has a wealth of software development, team, and product management experience from working on network protocols and distributed systems, and in digital technology sectors such as VOD, music, and VoIP. When not writing code, or talking about it, Liz loves riding bikes in places with better weather than her native London, competing in virtual races on Zwift, and making music under the pseudonym Insider Nine.

Matt Barker

Matt Barker is President and Co-founder of Jetstack. He's spent his career in open source software vendors and was an early employee at Canonical, the company behind Ubuntu Linux, and then NoSQL Database company MongoDB, seeing the company grow from a few millions of dollars in revenue to a successful Nasdaq IPO.

As a technical non-technical person he became interested in the business use cases around software containers, and started Jetstack to help companies get value out of Docker and Kubernetes. As CEO he grew the company organically to 30 people and in the process created one of the most-popular cloud native projects in the ecosystem, 'cert-manager' which is downloaded millions of times a day.

Jetstack was acquired by the founders of Machine Identity Management, Venafi Inc. in May 2020. Venafi subsequently took strategic investment from Thoma Bravo in Dec 2020, turning it into a cybersecurity Unicorn with a valuation of \$1.15bn.

In January 2021 Matt was awarded as a top 100 Open Source Influencer by OpenUK.

Nicki Watt

Nicki Watt currently serves as OpenCredo’s CTO and CEO, a pragmatic hands on software consultancy with specialisms in platform and data engineering as well as cloud native solution development. Her career has seen her wear many hats from Engineer, Systems & Technical Architects to Consultant and now CTO and CEO. She is a techie at heart, author and regular conference speaker always looking to share her experience with the broader community.

6.2 About the Report Authors

OpenUK

OpenUK is the unique open tech industry body for the business of open technology in the UK. It spans the opens – software, hardware, data, standards and AI and is the convening point for the UK’s business, academic and contributing communities across open tech. Our work supports the UK’s journey to become “The State of Open”. Our organisation is run with the support of our volunteer community and their leadership in the tradition of open source delivering on three pillars: community, legal and policy and learning. Our Community is recognised through our world-leading open tech recognition programme including the OpenUK Awards (the Oscars of Open Source) now in their 5th year, New Year’s Honours Lists and Ambassador Scheme.

OpenUK undertakes research and reporting both on its own account through its “State of Open Reports” and on a commissioned basis for third parties. Case studies, Thought Leadership, Surveys and desk-based research are included in our reporting which pushes the envelope and leads the way. Our Research and Reporting Show and Tell events coalesce the global open source research communities digitally to regularly update and share research practices and topics. OpenUK’s new OpenUK Fellows Network for postgraduate researchers is launching in 2024 to encourage more academic research across the opens.

The State of Open Con has become one of the world’s leading open source conferences since its inception by OpenUK in 2023. In 2026 we expect to host 1000 people across 8 tracks and plenary sessions, with at least 50 partners in our delegate experience space and over 200 speakers. Our small events team deliver to the highest standards a series of unique events through the year and our community organise UK-wide OpenUK meet-ups. Contact OpenUK admin@openuk.uk

6.3 Acknowledgements

We are grateful to the individuals who participated and provided us with case studies, fireside chats and thought leadership to bring the key issues to life.

Thank you to the Cloud Native Computing Foundation.

6.4 Sponsors

OpenUK is grateful to its many sponsors and supporters without whose support its work including its report would not have been possible in particular, its general sponsors Arm, GitHub, Google, Linaro, Microsoft, and Red Hat.

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