

 SUNAND BHATIA

HOW TO TELL YOUR KIDS YOU UPGRADED KUBERNETES



SUNAND BHATIA 

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Sr. Technical Solution Specialist

- While I love building and managing complex systems, I also have a passion for sharing knowledge.
- Outside of tech, you might find me dancing, whipping up a new recipe



Sunand Bhatia



sunand0702





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MEET YOUR PAPA



Orchestration Timeline

2003-2004

Borg System

2013

Omega

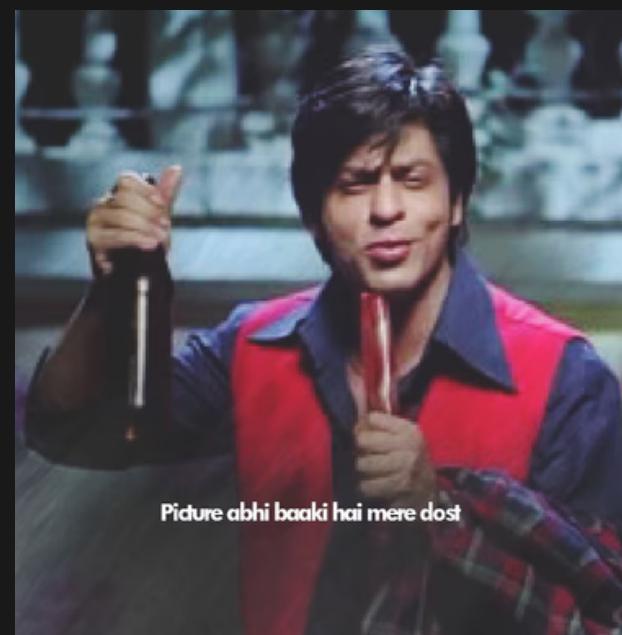
2014

Google Introduces Kubernetes

2015

The year of Kube v1.0 & CNCF

2018-PRESENT



2017

The Year of Enterprise
Adoption & Support

2016

The Year Kubernetes
Goes Mainstream!

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BEFORE KUBERNETES

Borg: The Predecessor to Kubernetes

- Google introduced the [**Borg System**](#) around 2003-2004. It started off as a small-scale project, with about 3-4 people initially in collaboration with a new version of Google's new search engine. Borg was a large-scale internal cluster management system, which ran hundreds of thousands of jobs, from many thousands of different applications, across many clusters, each with up to tens of thousands of machines.
- Google has been running containerized workloads in production for more than a decade. Whether it's service jobs like web front-ends and stateful servers, infrastructure systems like [**Bigtable**](#) and [**Spanner**](#), or batch frameworks like [**MapReduce**](#) and [**Millwheel**](#), virtually everything at Google runs as a container. Today, we took the wraps off of Borg, Google's long-rumored internal container-oriented cluster-management system, publishing details at the academic computer systems conference [**Eurosys**](#).

Borg to Omega

- Add a little bit of Omega uses a shared-state architecture with optimistic concurrency control. This allows for more efficient resource allocation and faster response to changing demands compared to traditional schedulers.
- **Benefits:** Due to its design, Omega offers advantages like:
 - **Scalability:** It can handle much larger and more complex clusters than Borg.
 - **Flexibility:** New features and schedulers can be easily integrated without impacting the entire system.
 - **Efficiency:** Improved resource utilization leads to better performance.

KUBERNETES TIMELINE

The Toddler Years (v1.x)



The Terrible Twos (v1.10 - v1.19)



The Awkward Adolescence (v1.20 - Present)



Note : Kubernetes versions are expressed as x.y.z, where x is the major version, y is the minor version, and z is the patch version

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THE TODDLER YEARS (V1.X)

A Major Milestone and Collaboration: Kubernetes v1.0 and the Birth of CNCF

- Big News! In a significant moment for container orchestration, Kubernetes version 1.0 is released. This release signifies that Kubernetes is now considered stable and mature for production deployments. It's no longer just an experimental project.
- Joining Forces: Recognizing the potential of Kubernetes, Google partners with the Linux Foundation to establish the Cloud Native Computing Foundation (CNCF). This collaboration creates a central hub for the container orchestration ecosystem.

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- Kubernetes 1.3: Bridging Cloud Native and Enterprise Workloads



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- Kubernetes 1.9: Apps Workloads GA and Expanded Ecosystem
- Kubernetes 1.10: Stabilizing Storage, Security, and Networking



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Windows User



Windows Server Support (Kubernetes 1.5): This release expands Kubernetes' reach by introducing support for Windows Server containers and Hyper-V containers. This opens doors for organizations using Windows environments to leverage the benefits of container orchestration with Kubernetes.



Role Base Access Control Beta (Fine-Grained Access Control)



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This feature (in beta) allows for more granular control over who can access what resources within the cluster, improving security.



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Kubernetes 1.10 - Left Shark



[Kubernetes 1.10 - Left Shark](#)



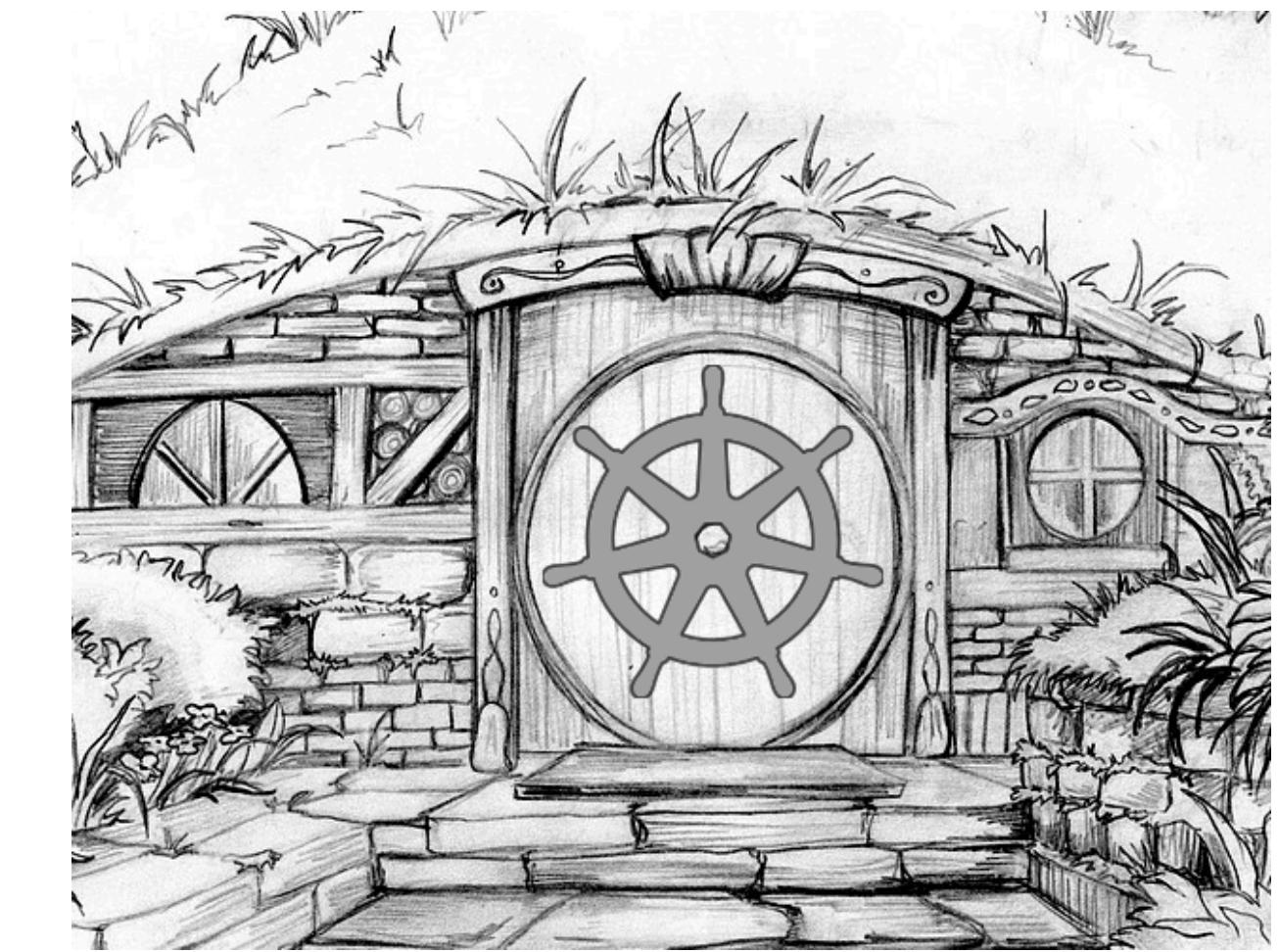
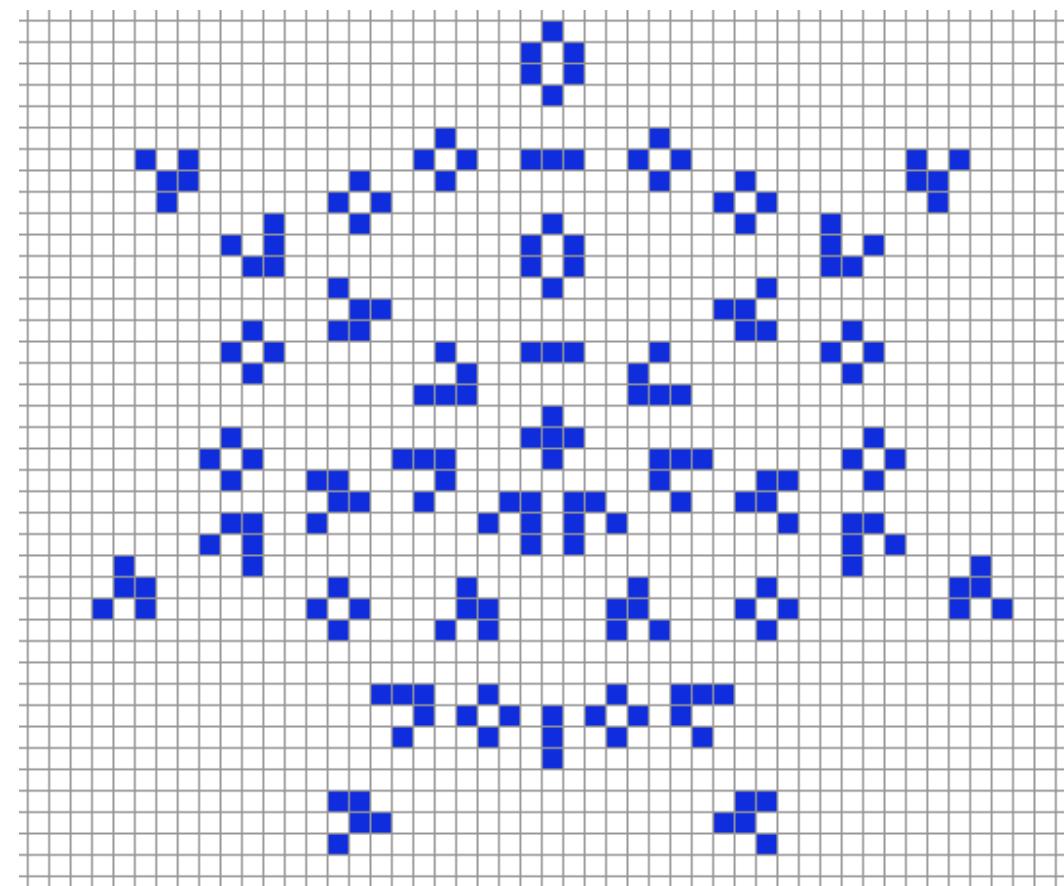
[Eleventy-One: A Long-Expected Release](#)

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Kubernetes 1.10 - Left Shark

1.12 Life



Eleventy-One: A Long-Expected Release



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[Kubernetes 1.14: Catternetes](#)

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Kubernetes 1.15: The Persevering Release

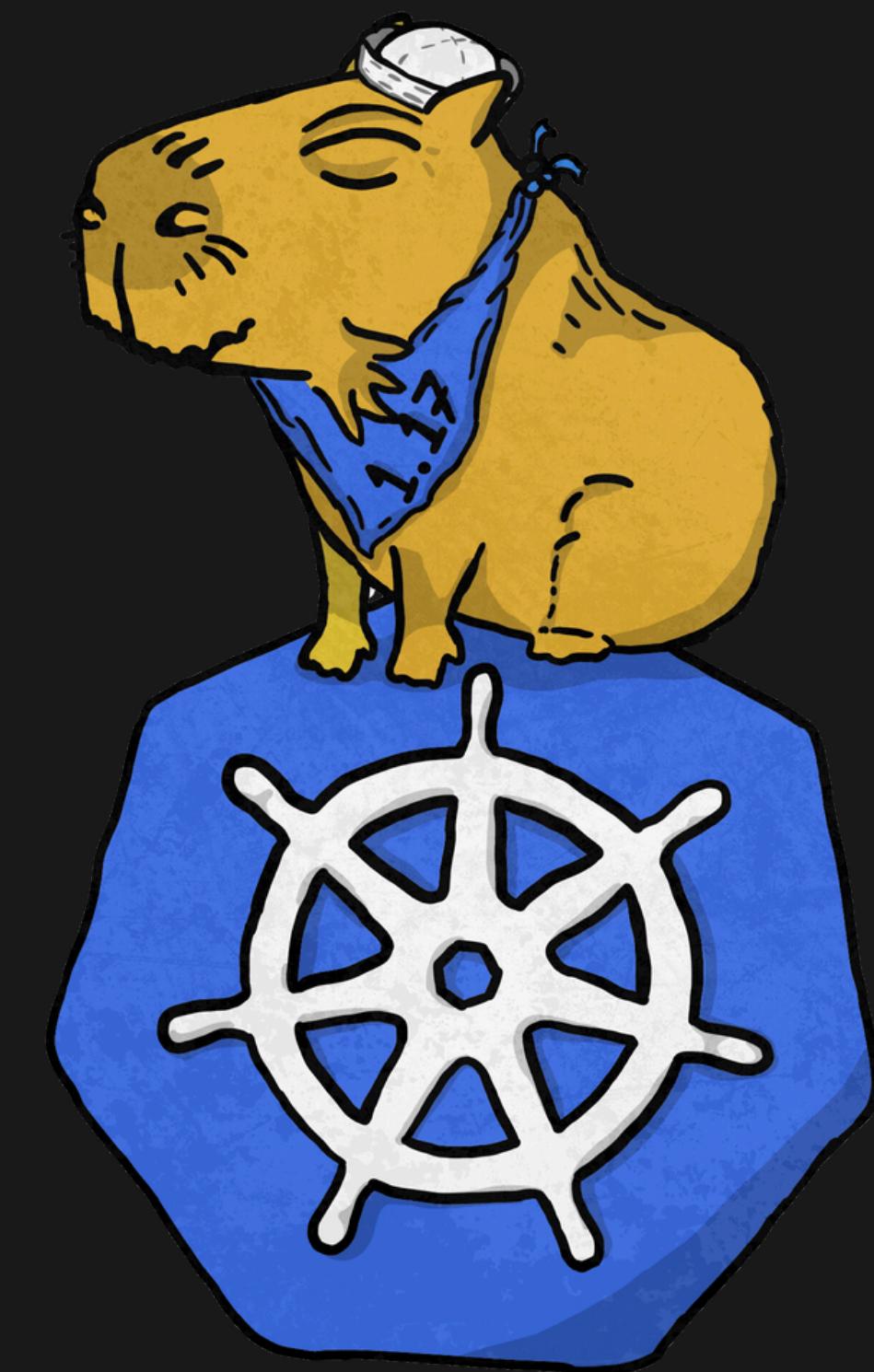


Kubernetes 1.14: Caternetes

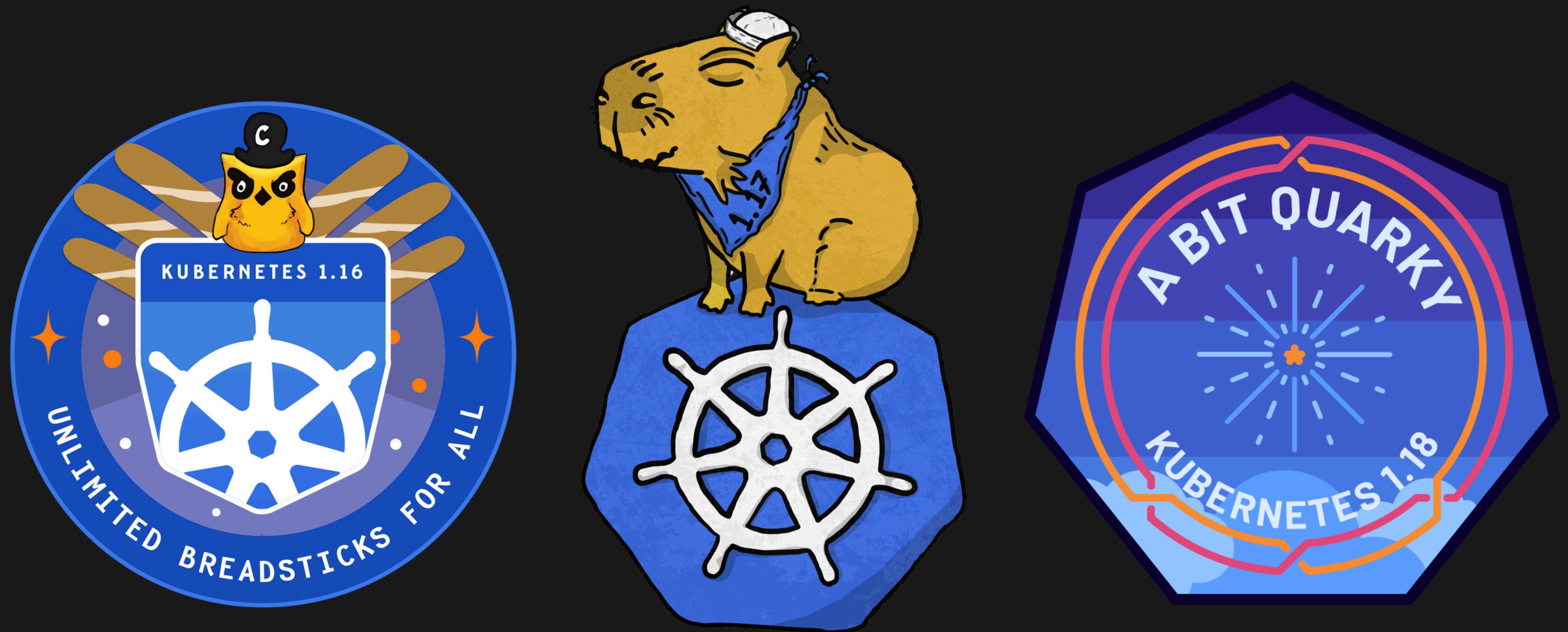
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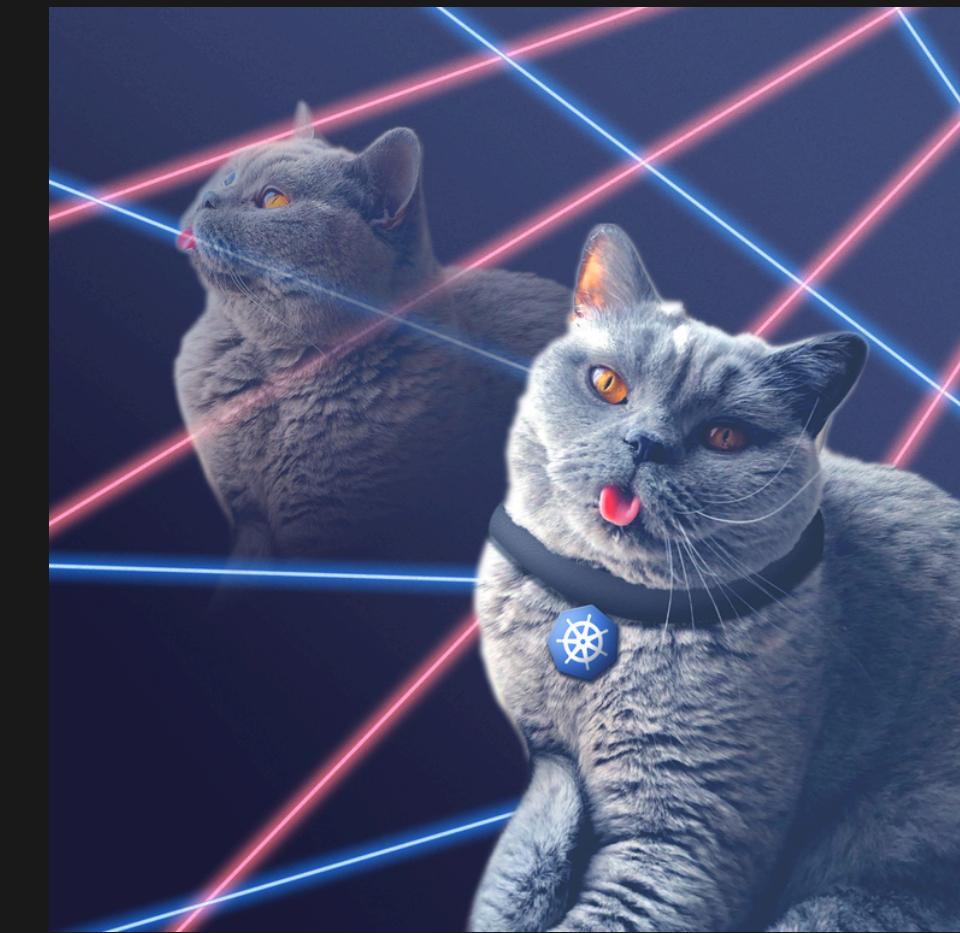
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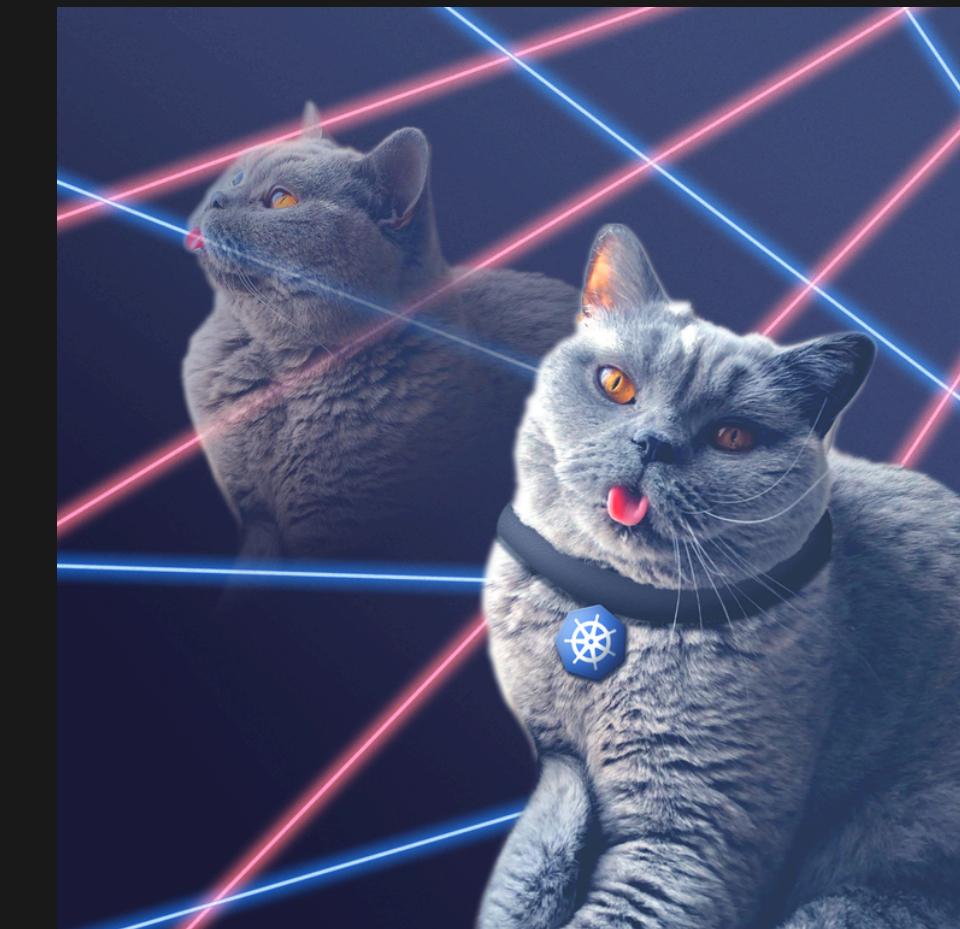


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kubernetes 1.20

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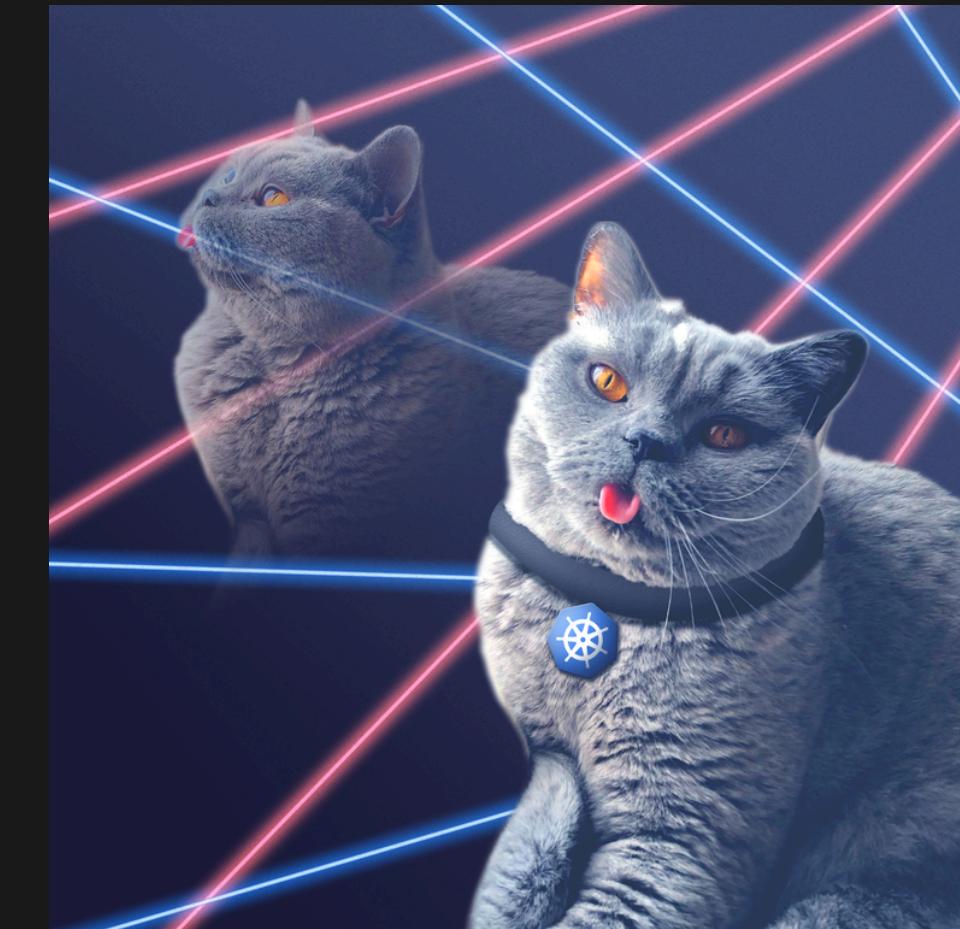


kubernetes 1.20



kubernetes 1.21

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kubernetes 1.20





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KUBERNETES V1.27 CHILL VIBES



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Kubernetes v1.28: Planternetes

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Kubernetes v1.28: Planternetes



Kubernetes v1.29: Mandala (The Universe) ✨🌐

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Kubernetes v1.28: Planternetes



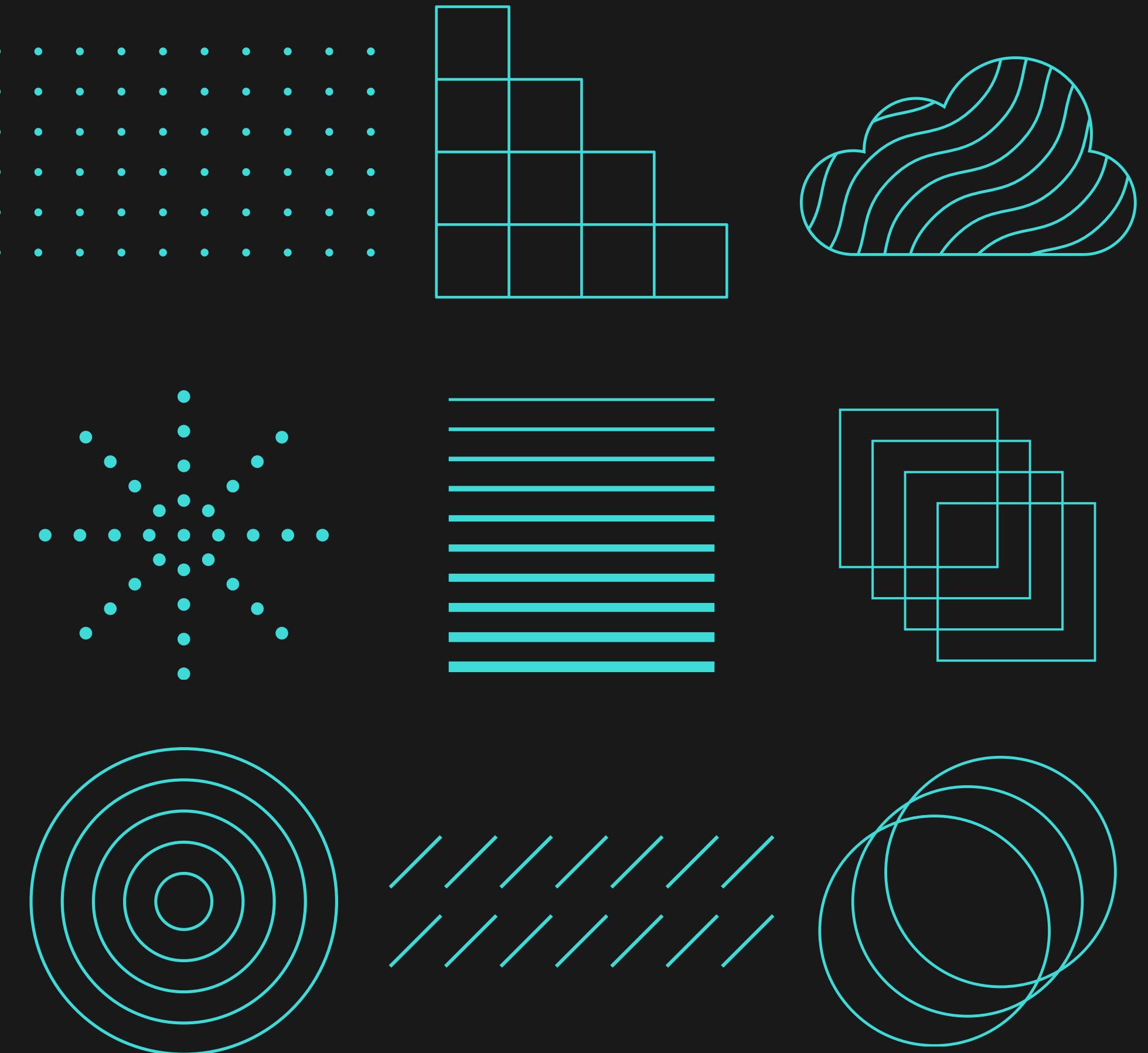
Kubernetes v1.30: Uwubernetes



Kubernetes v1.29: Mandala (The Universe) ✨🌐

Resource Page

- <https://kubernetes.io/blog/2016/12/kubernetes-1-5-supporting-production-workloads/>
- <https://kubernetes.io/blog/2018/12/03/kubernetes-1-13-release-announcement/>





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THANK YOU ALL



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Kubernetes
10 YEARS

HAPPY BIRTHDAY,
Kubernetes!