Cloud Native is About Culture, Not Containers

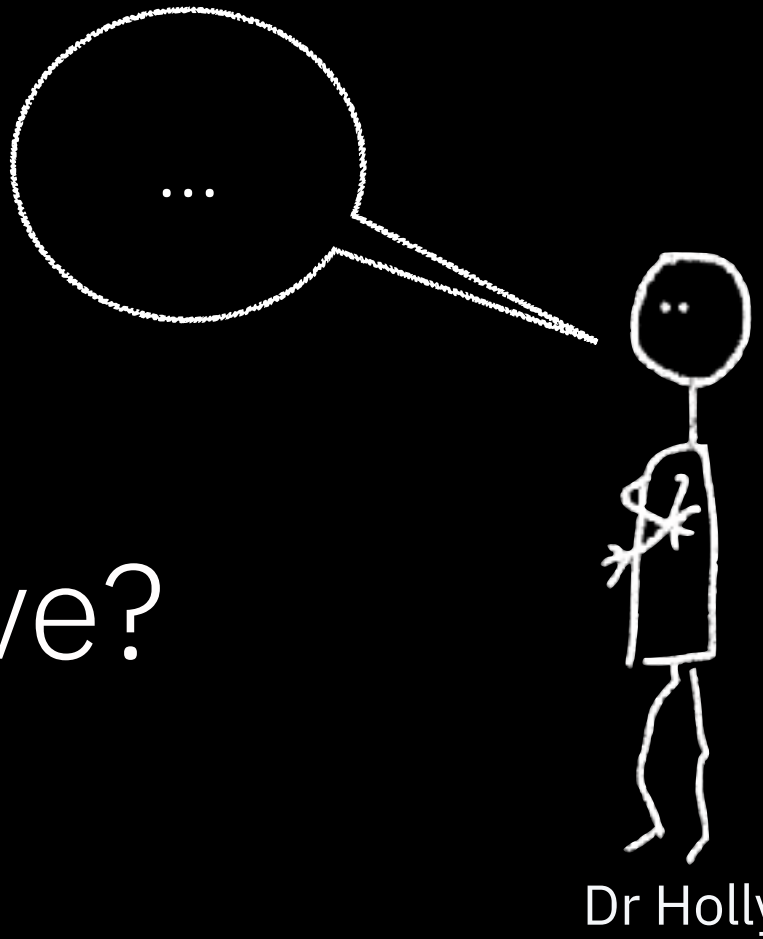
(how to not fail at cloud native)

Craft Conf

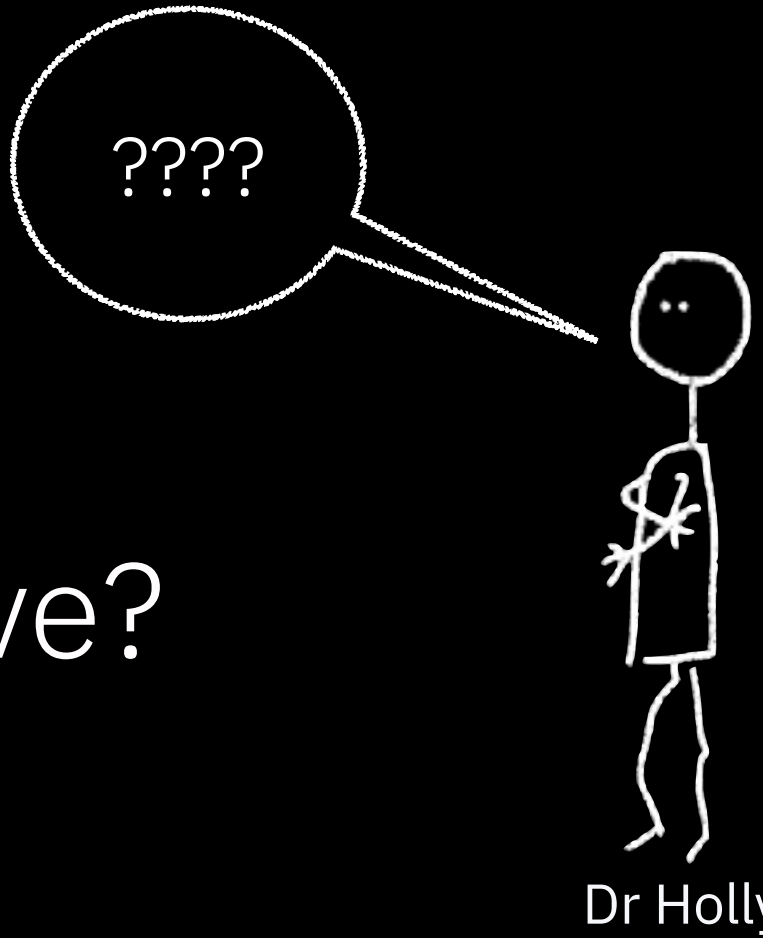
Holly Cummins
IBM
@holly_cummins

IBM

what **is**
cloud native?

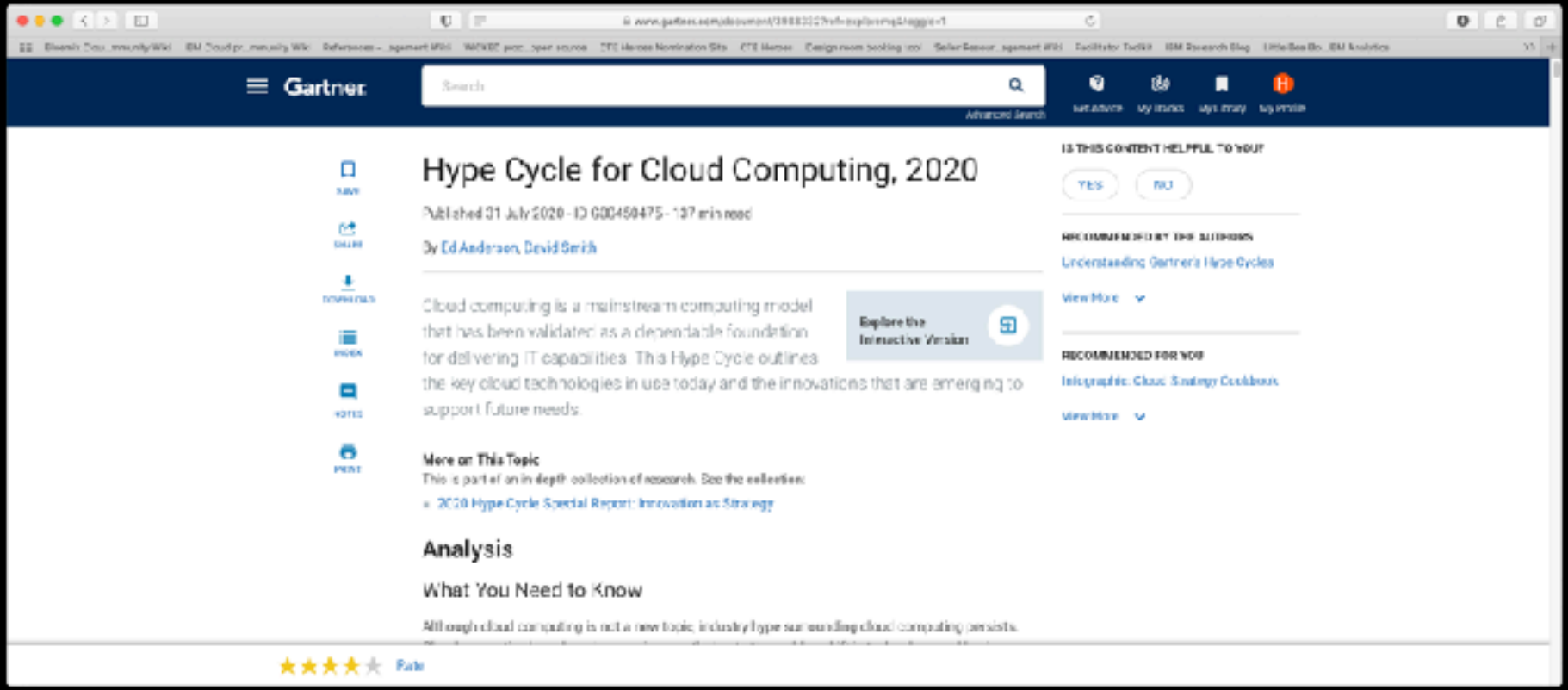


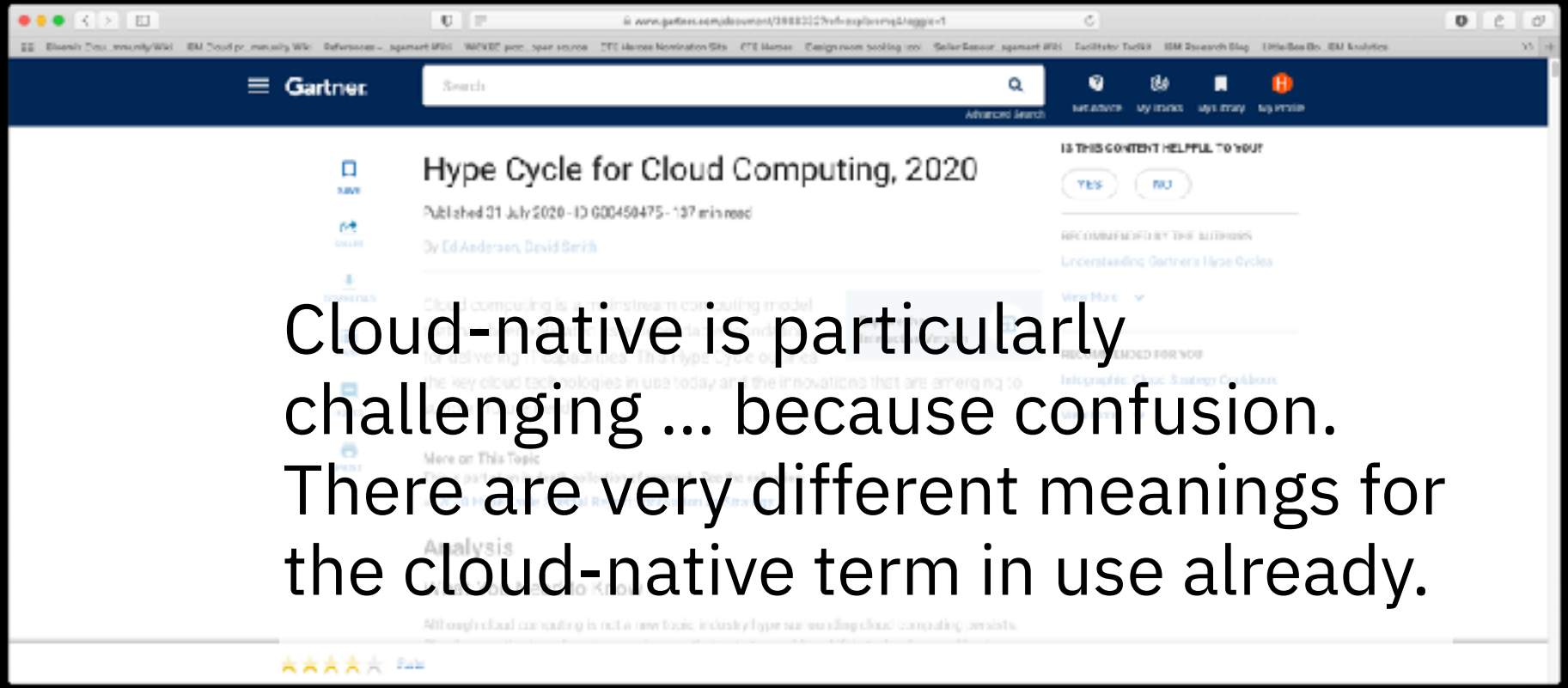
what **is** cloud native?



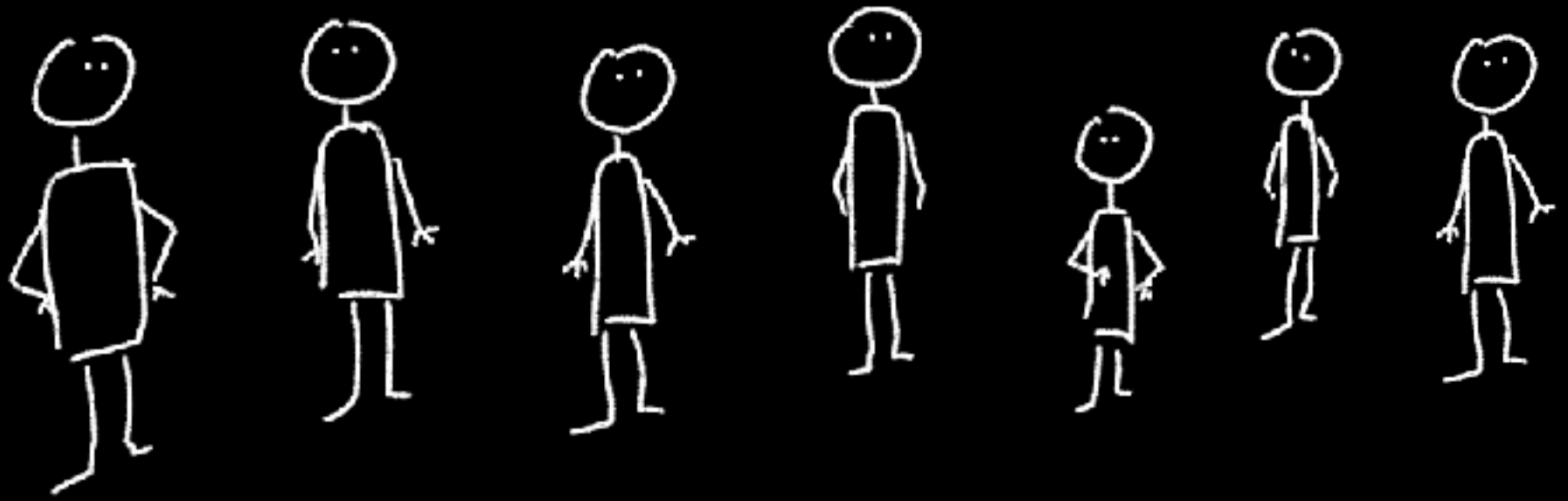
what **is** cloud native?

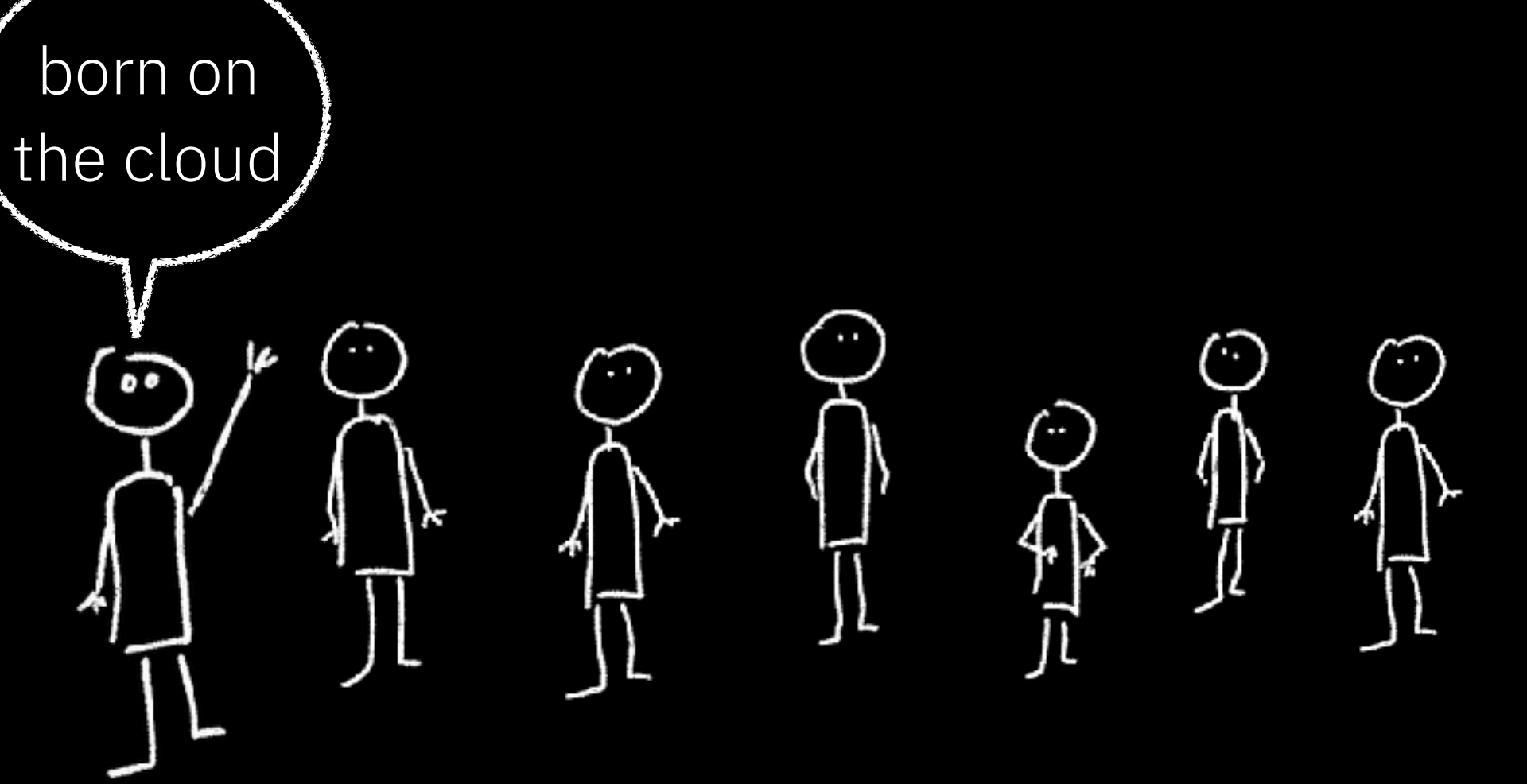
@holly_cummins

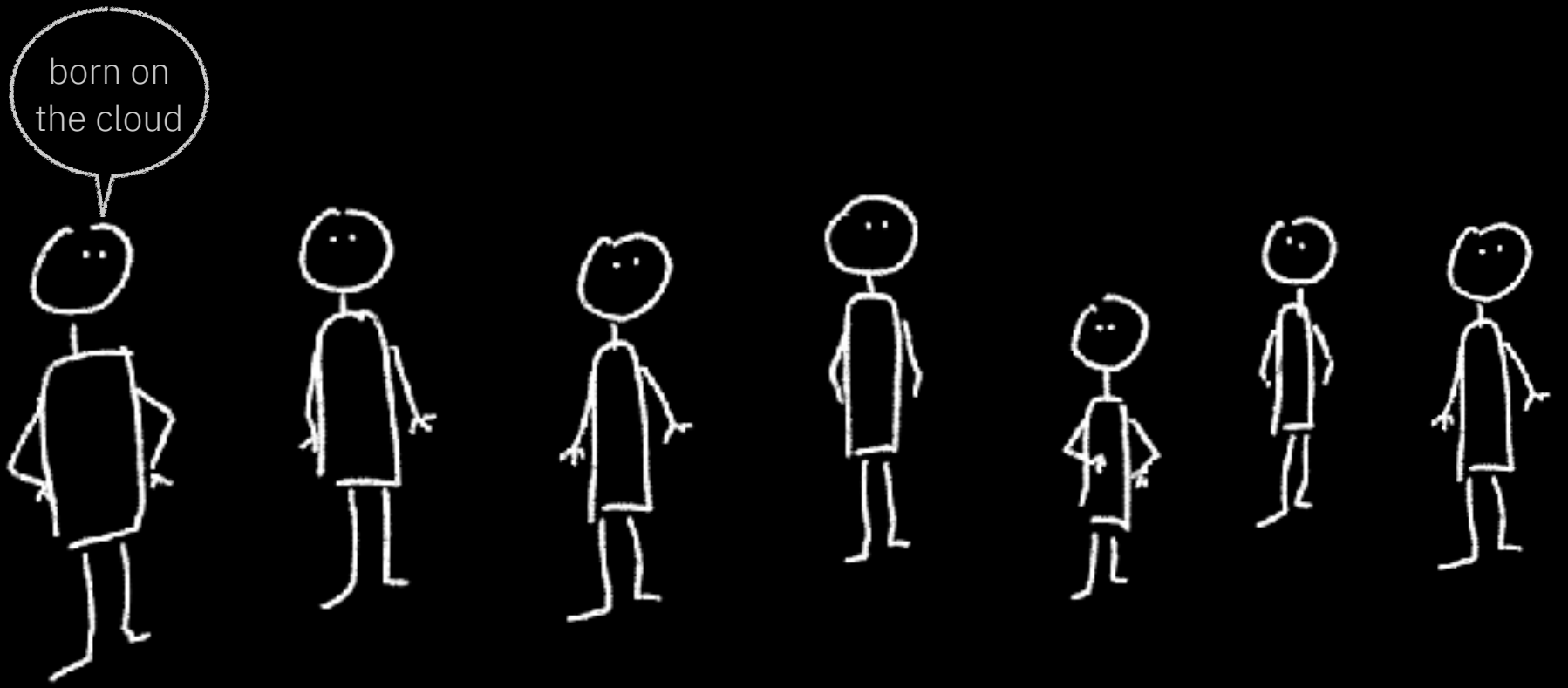

Gartner
Search
Advanced Search
Hype Cycle for Cloud Computing, 2020
Published 31 July 2020 - ID G00450475 - 137 min read
By Ed Anderson, David Smith
Cloud computing is a mainstream computing model that has been validated as a dependable foundation for delivering IT capabilities. This Hype Cycle outlines the key cloud technologies in use today and the innovations that are emerging to support future needs.
Explore the Interactive Version
More on This Topic
This is part of an in-depth collection of research. See the collection:
2020 Hype Cycle Special Report: Innovation as Strategy
Analysis
What You Need to Know
IS THIS CONTENT HELPFUL TO YOU?
YES
NO
RECOMMENDED BY THE EDITORS
Understanding Gartner's Hype Cycles
View More
RECOMMENDED FOR YOU
Infographic: Cloud Strategy Cookbook
View More
SAVE
SHARE
DOWNLOADS
PRINT
Rate

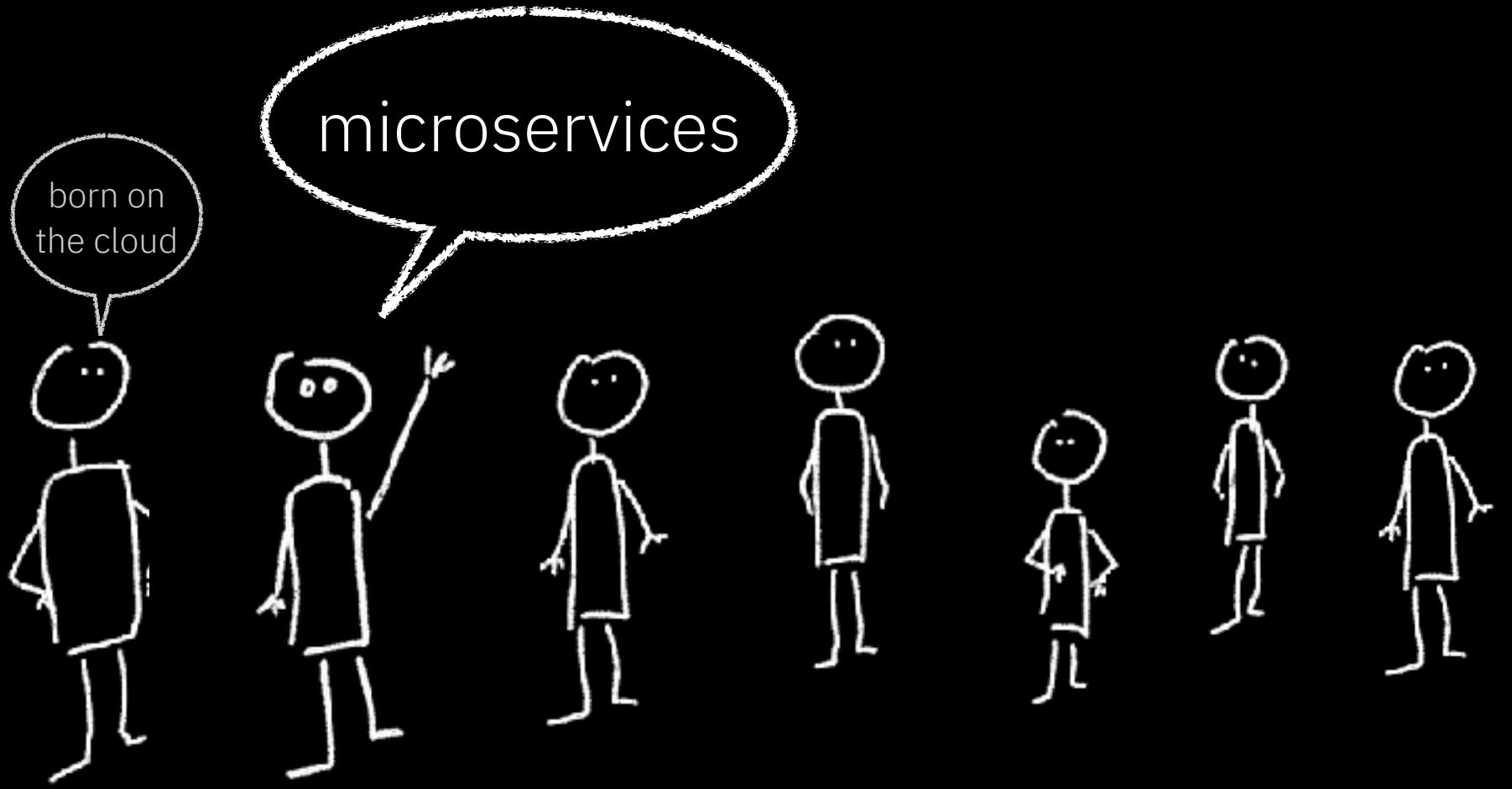


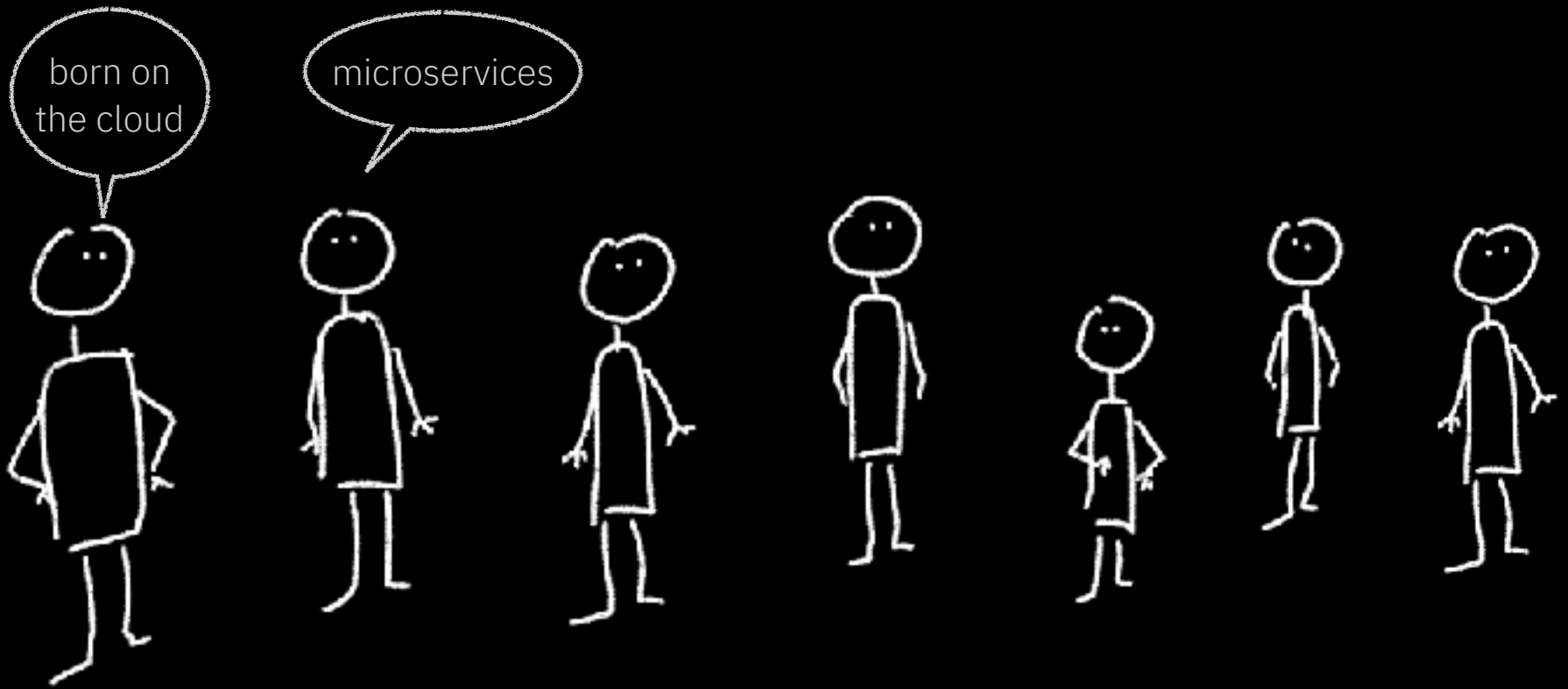
Cloud-native is particularly challenging ... because confusion. There are very different meanings for the cloud-native term in use already.

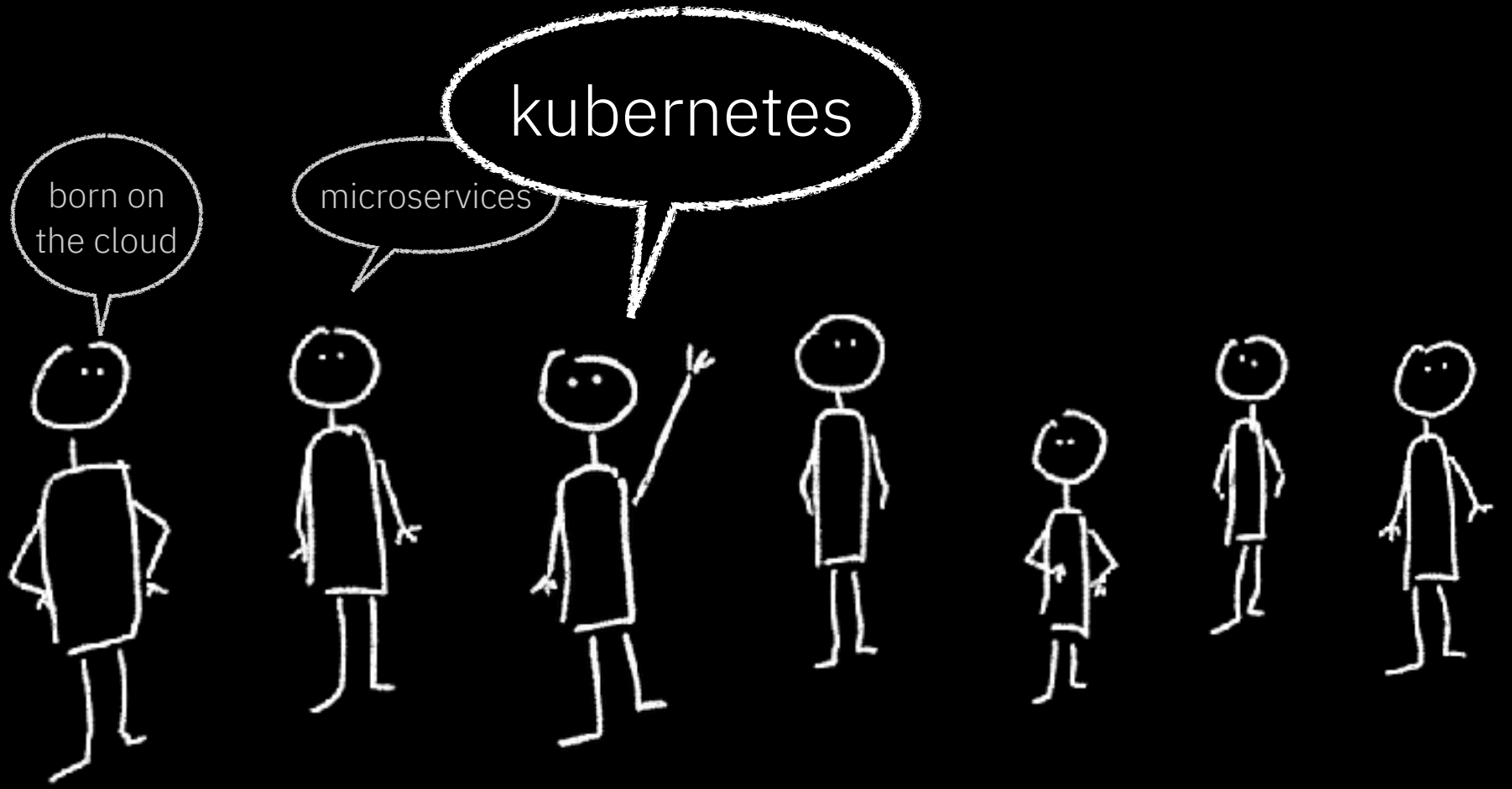


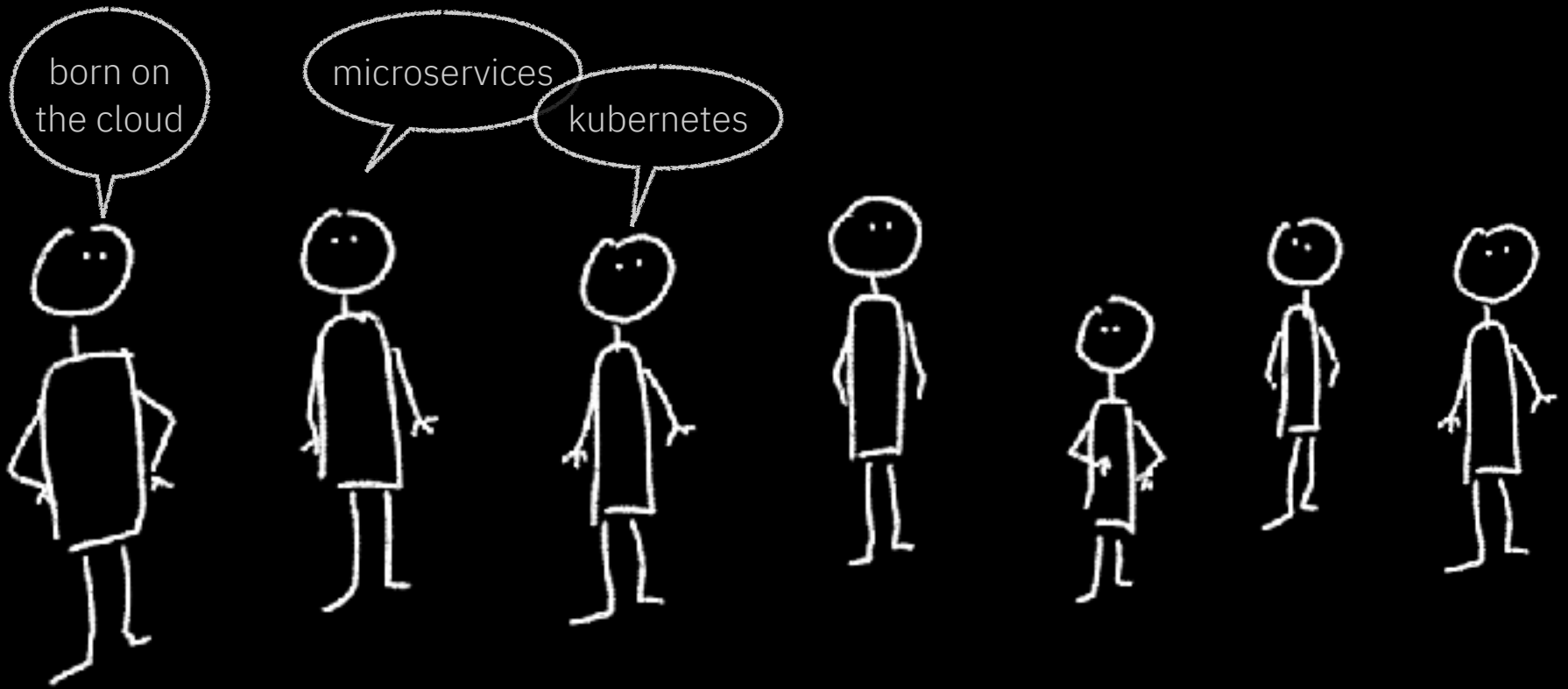

born on
the cloud

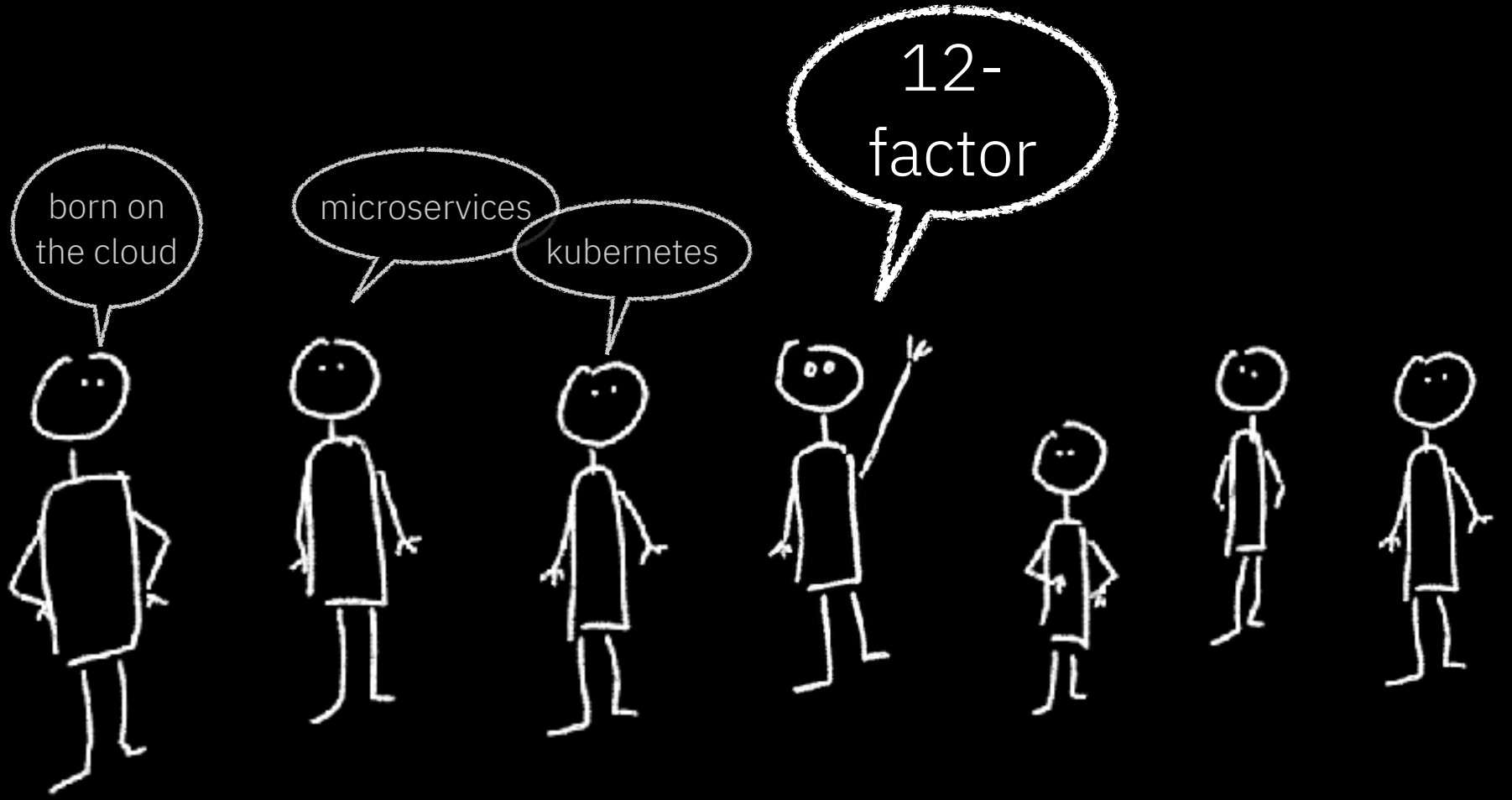

born on
the cloud

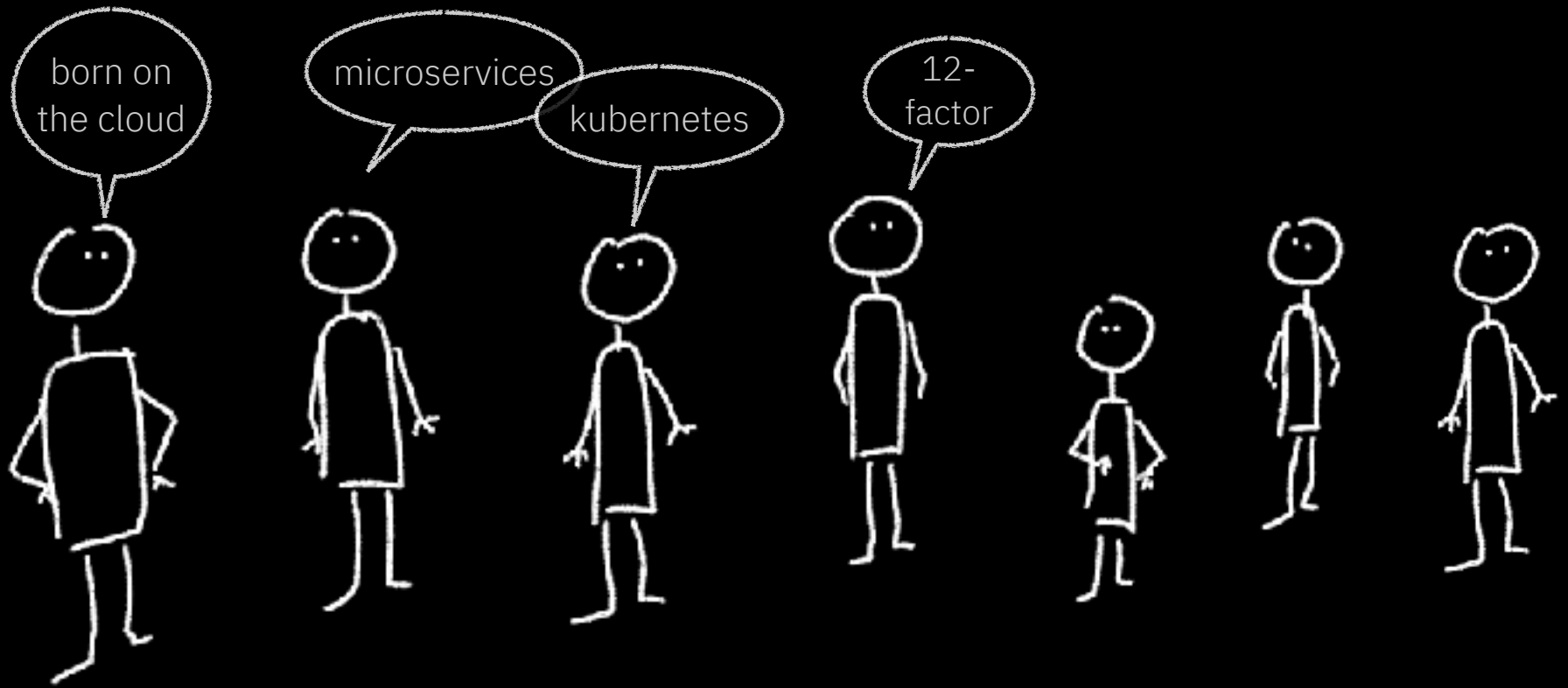

microservices
born on the cloud

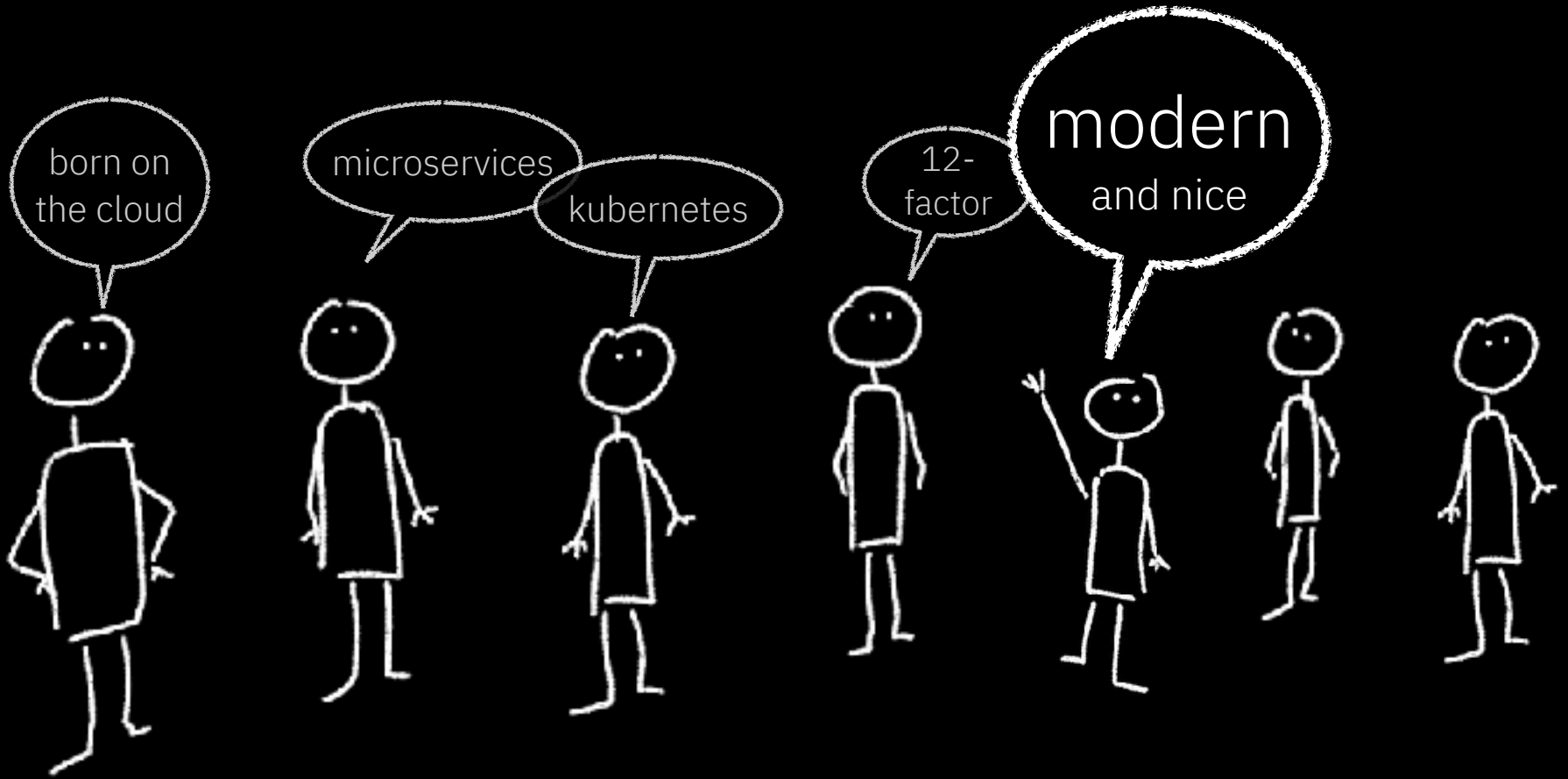

born on the cloud
microservices

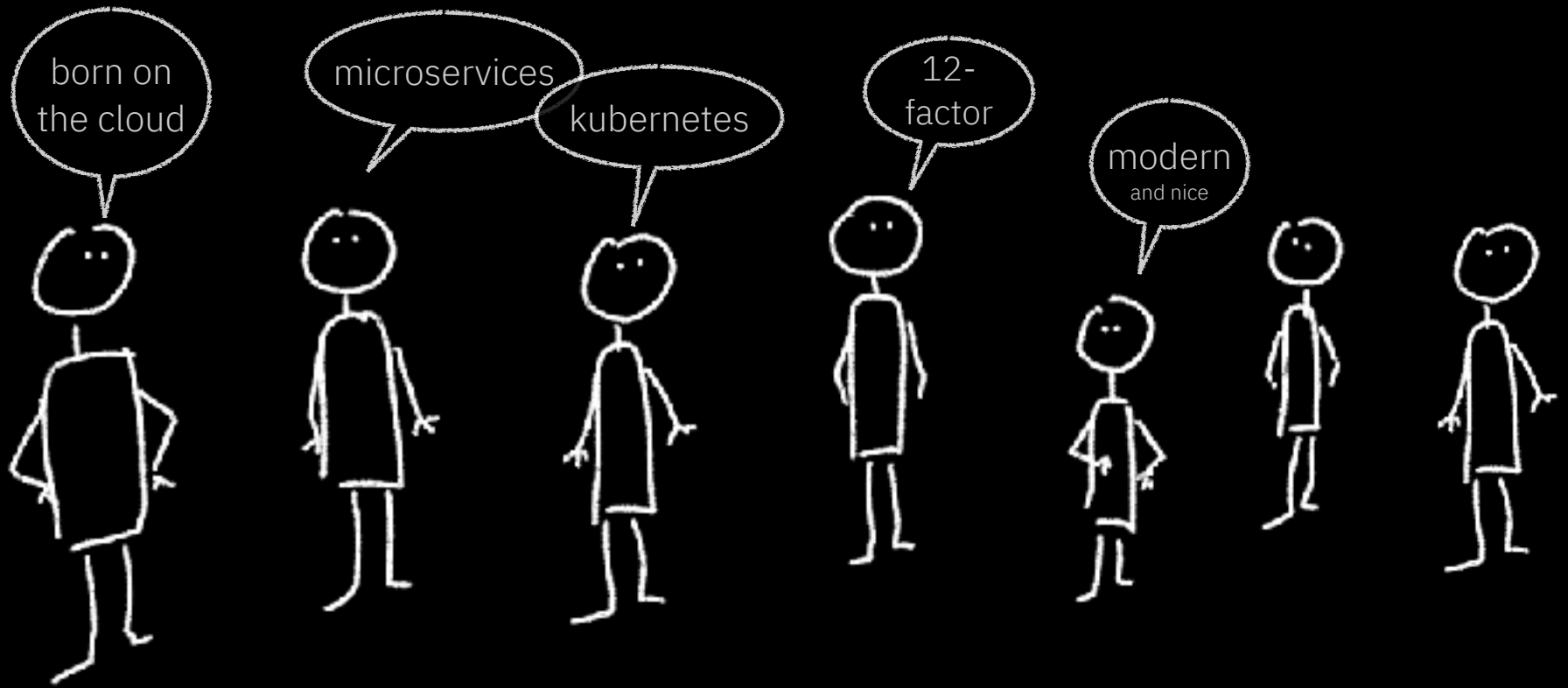

kubernetes
microservices
born on the cloud

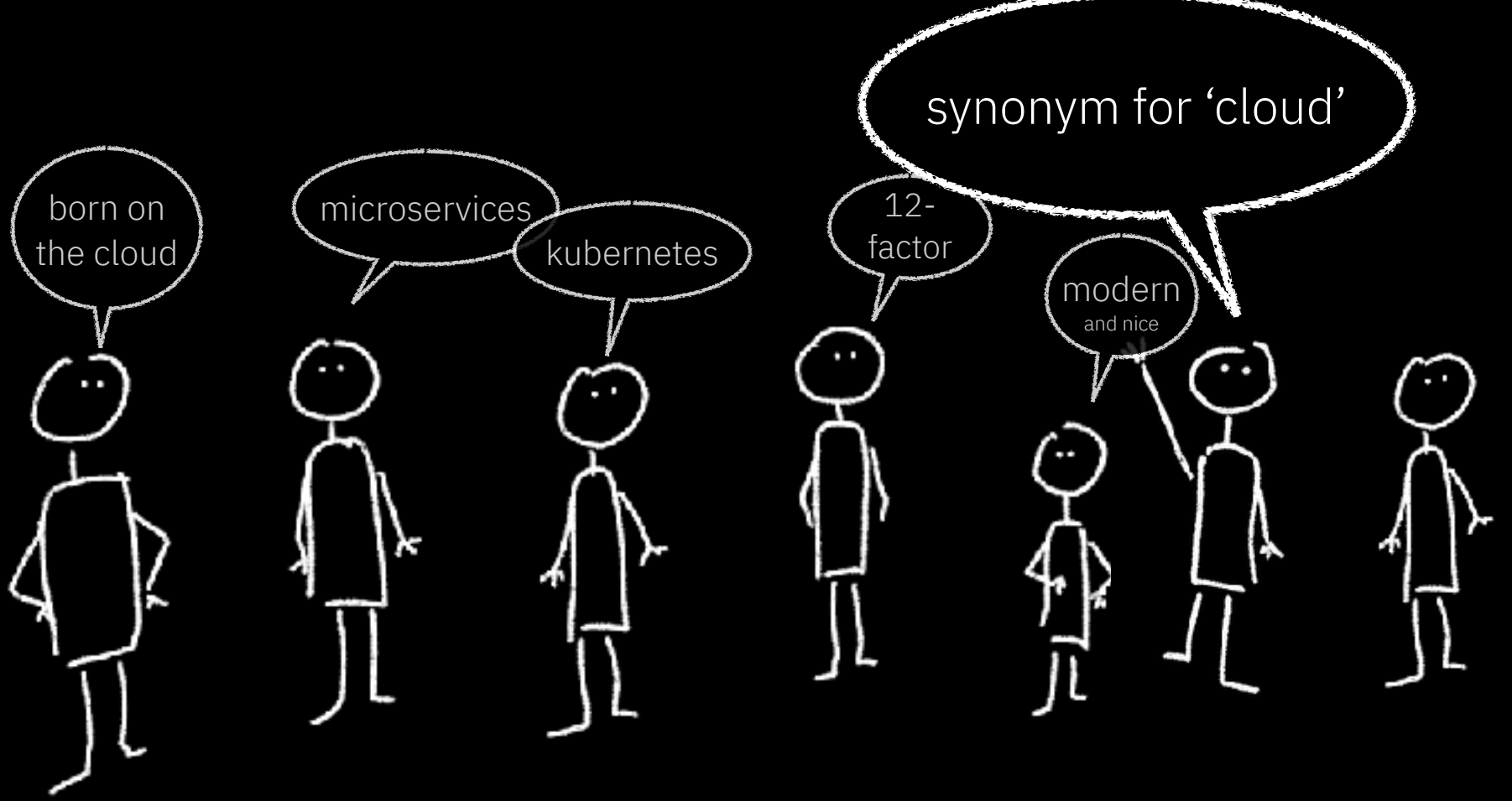

born on
the cloud
microservices
kubernetes

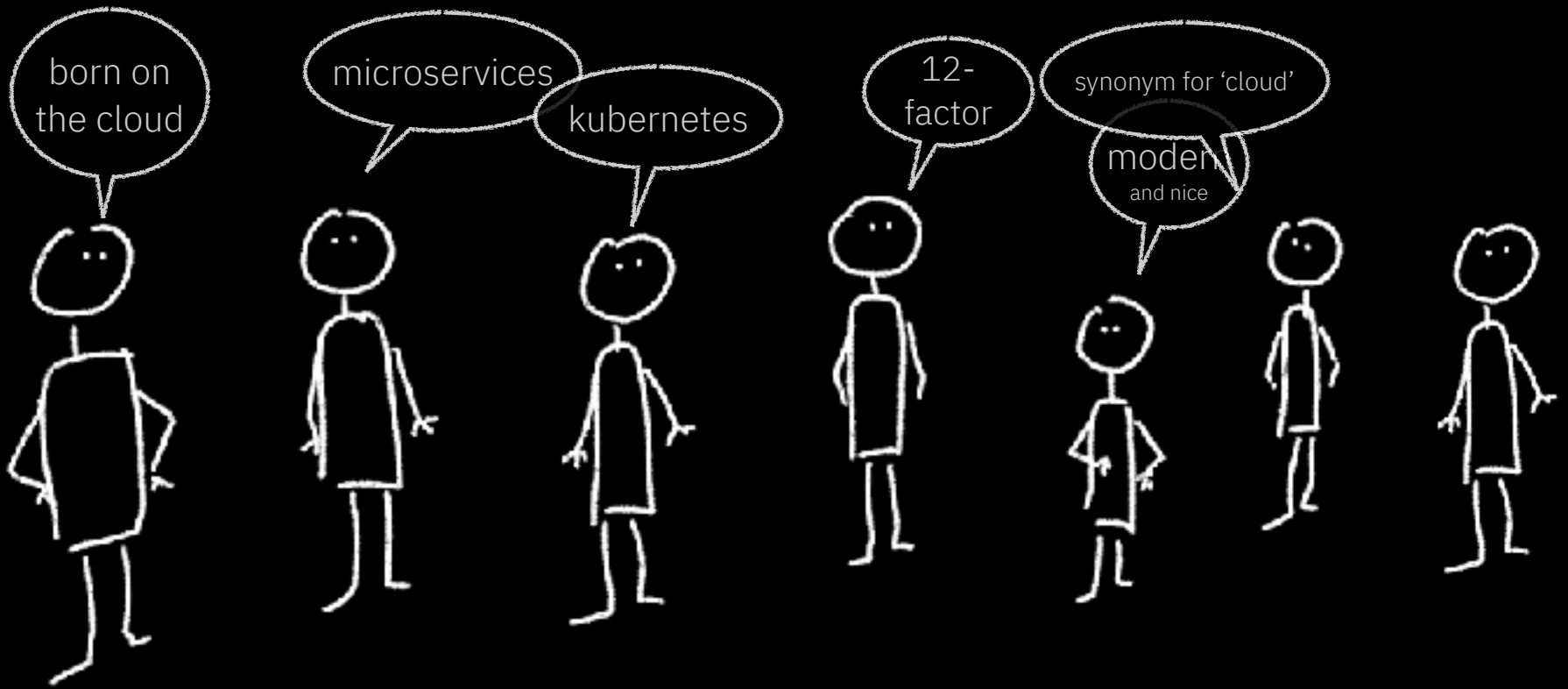

born on the cloud
microservices
kubernetes
12-factor

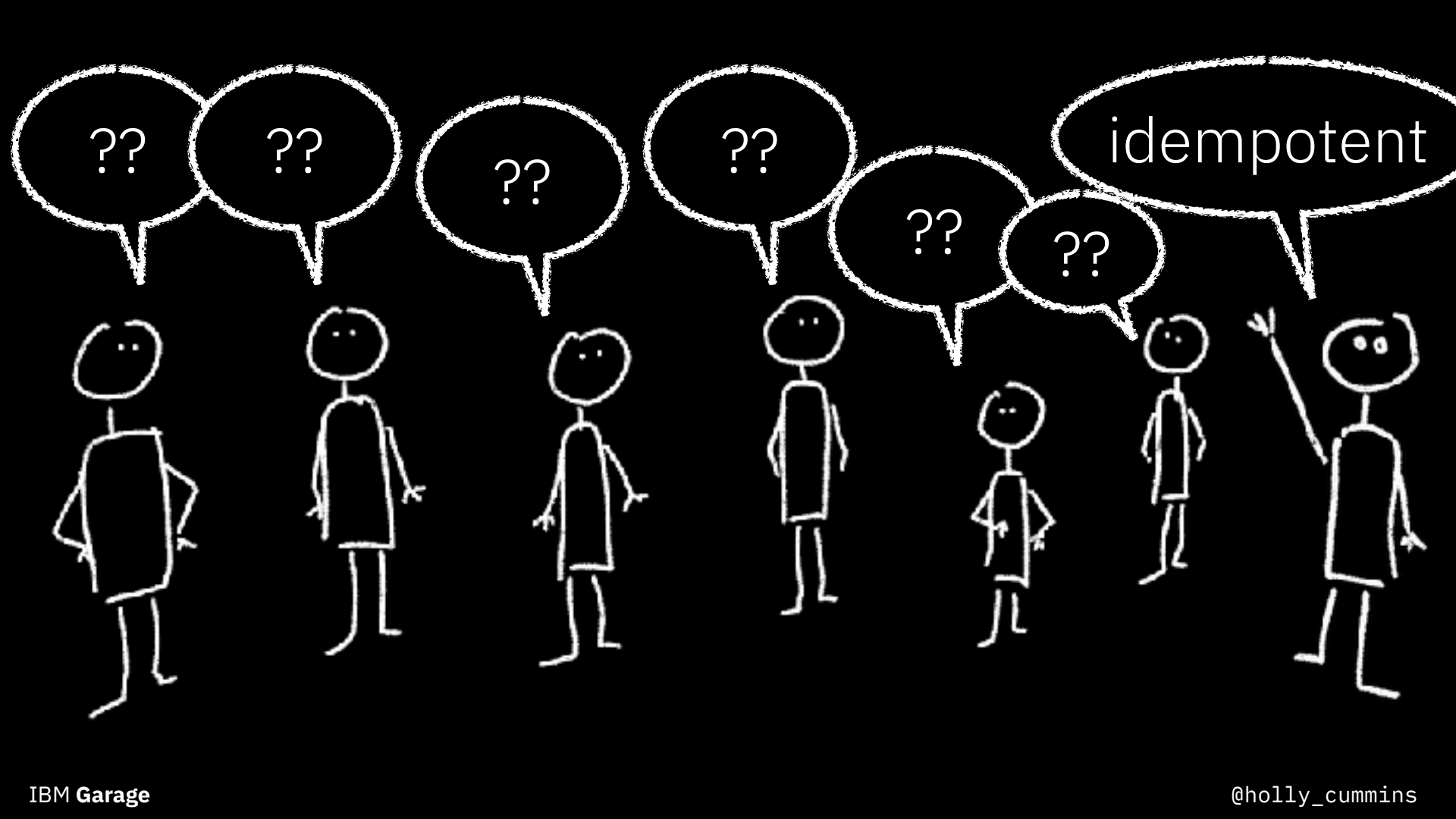

born on the cloud
microservices
kubernetes
12-factor

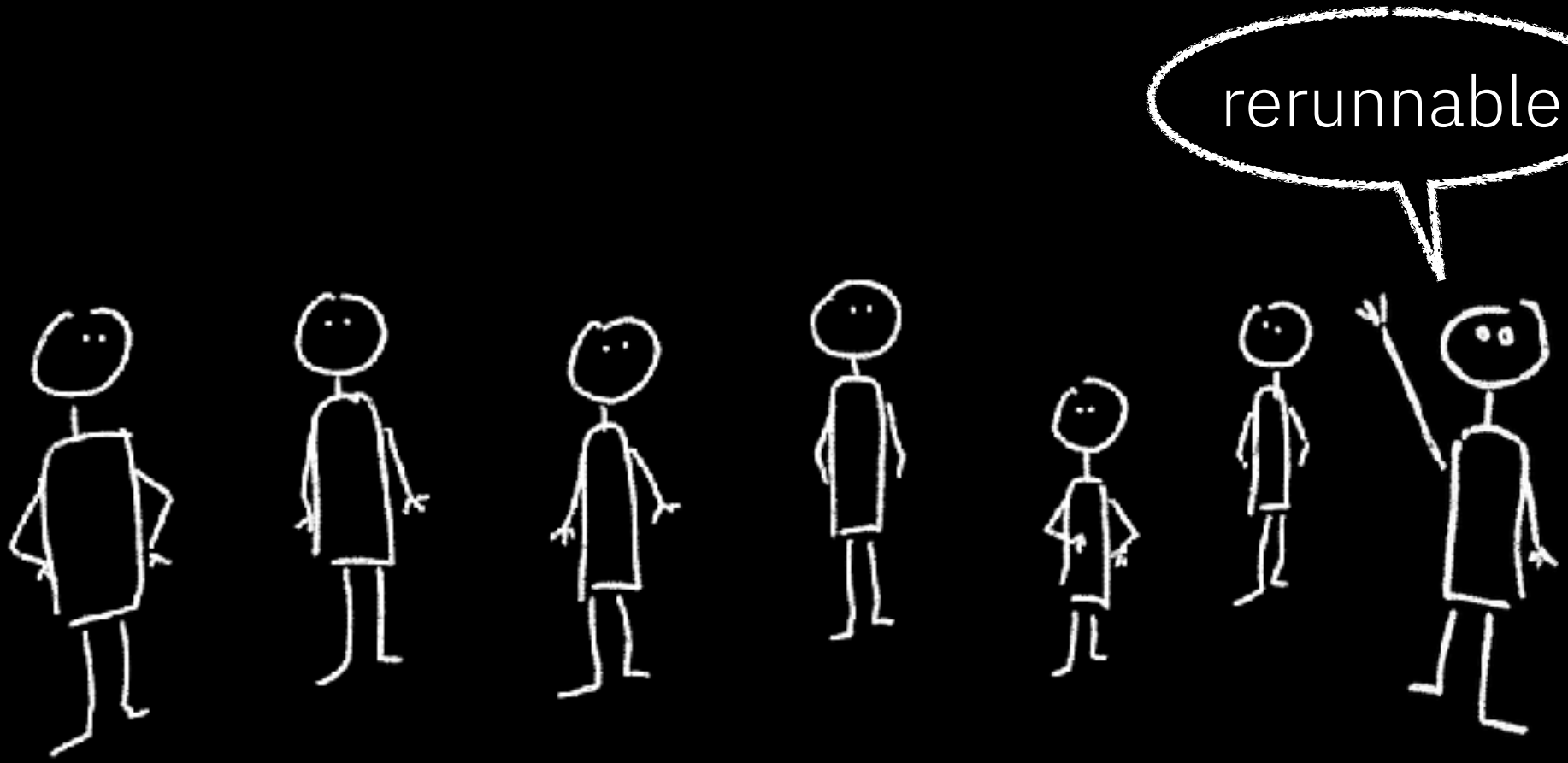

born on the cloud
microservices
kubernetes
12-factor
modern
and nice


born on the cloud
microservices
kubernetes
12-factor
modern
and nice

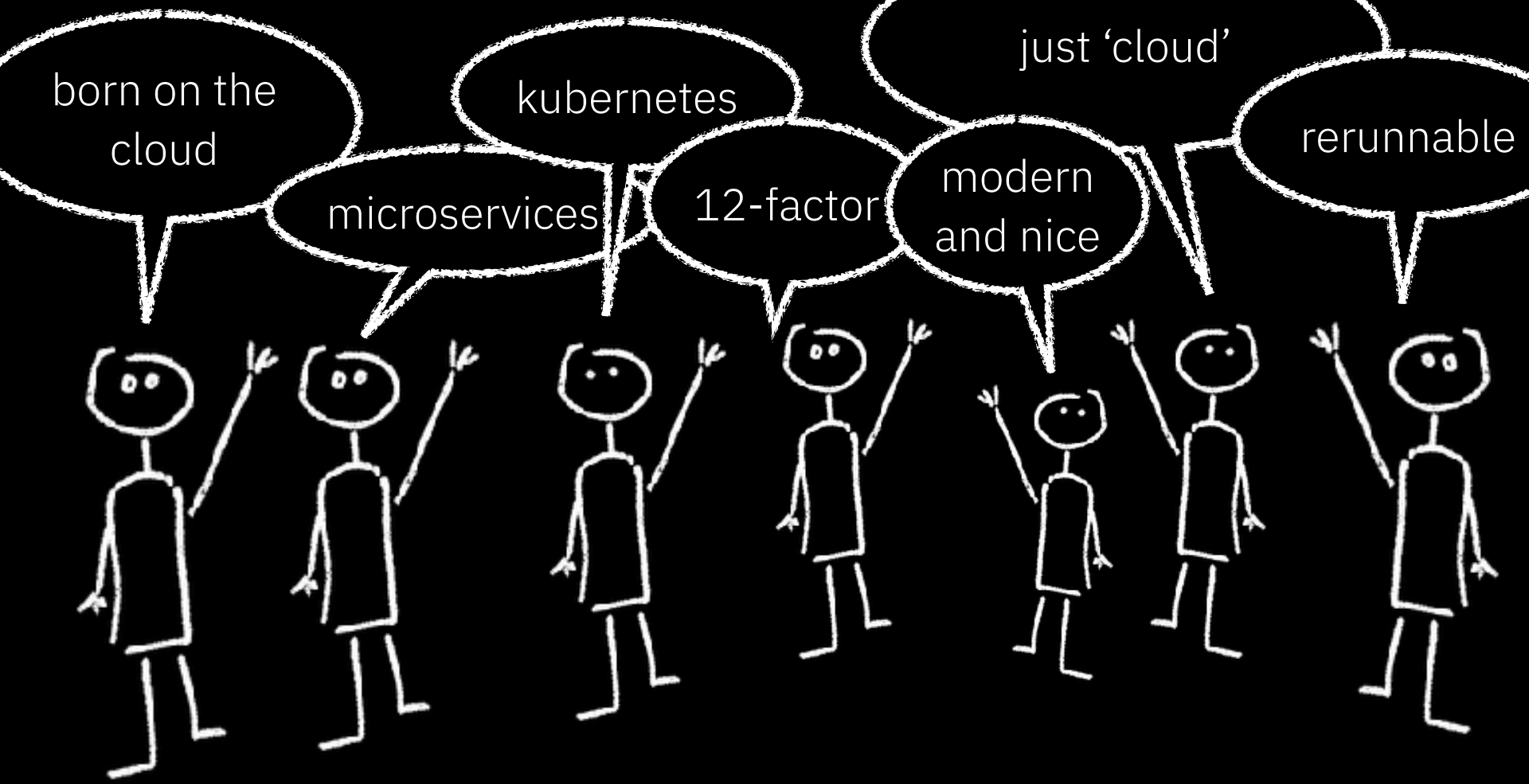

synonym for ‘cloud’
born on the cloud
microservices
kubernetes
12-factor
modern
and nice


born on the cloud
microservices
kubernetes
12-factor
synonym for 'cloud'
modern
and nice

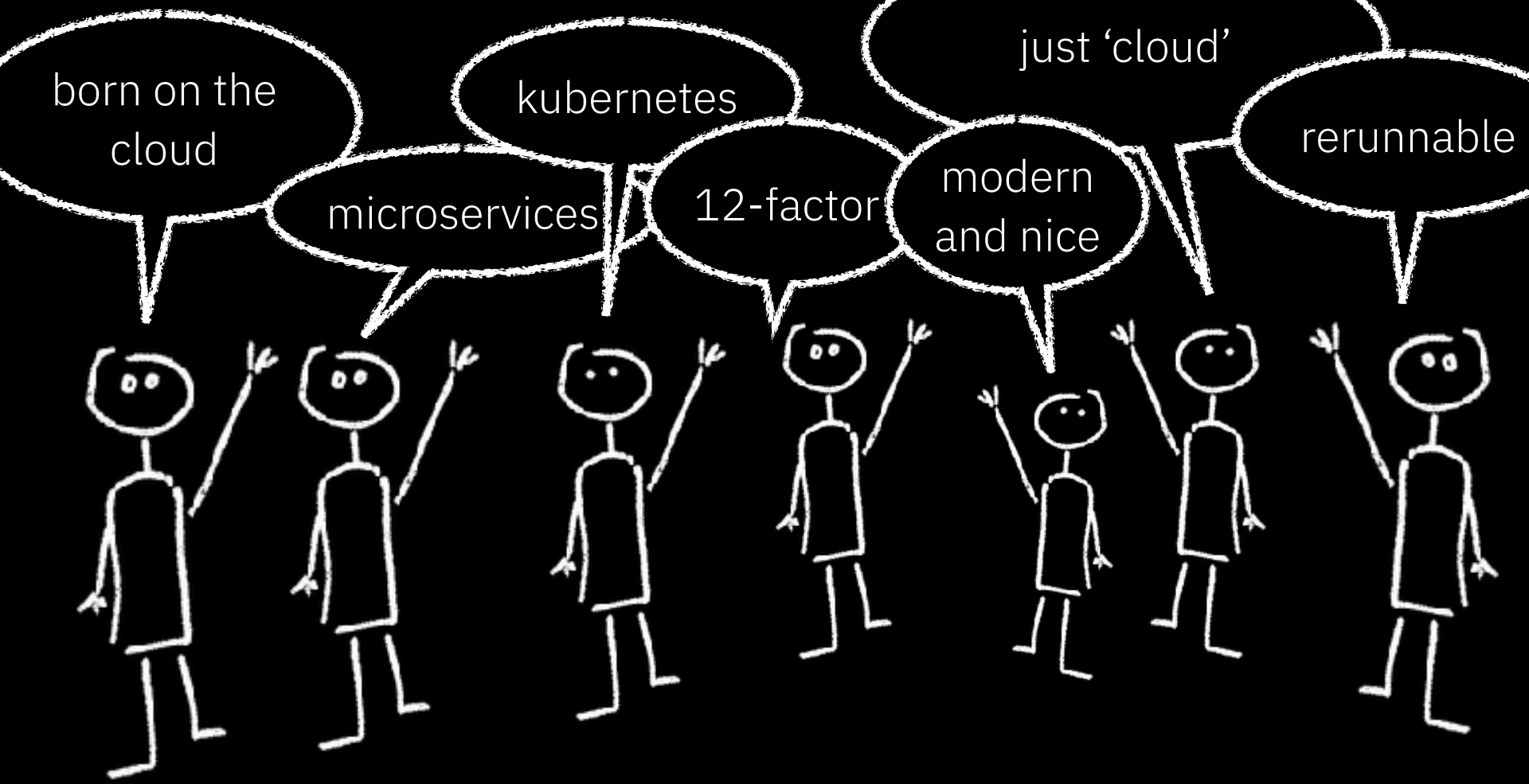

??
??
??
??
??
??
idempotent

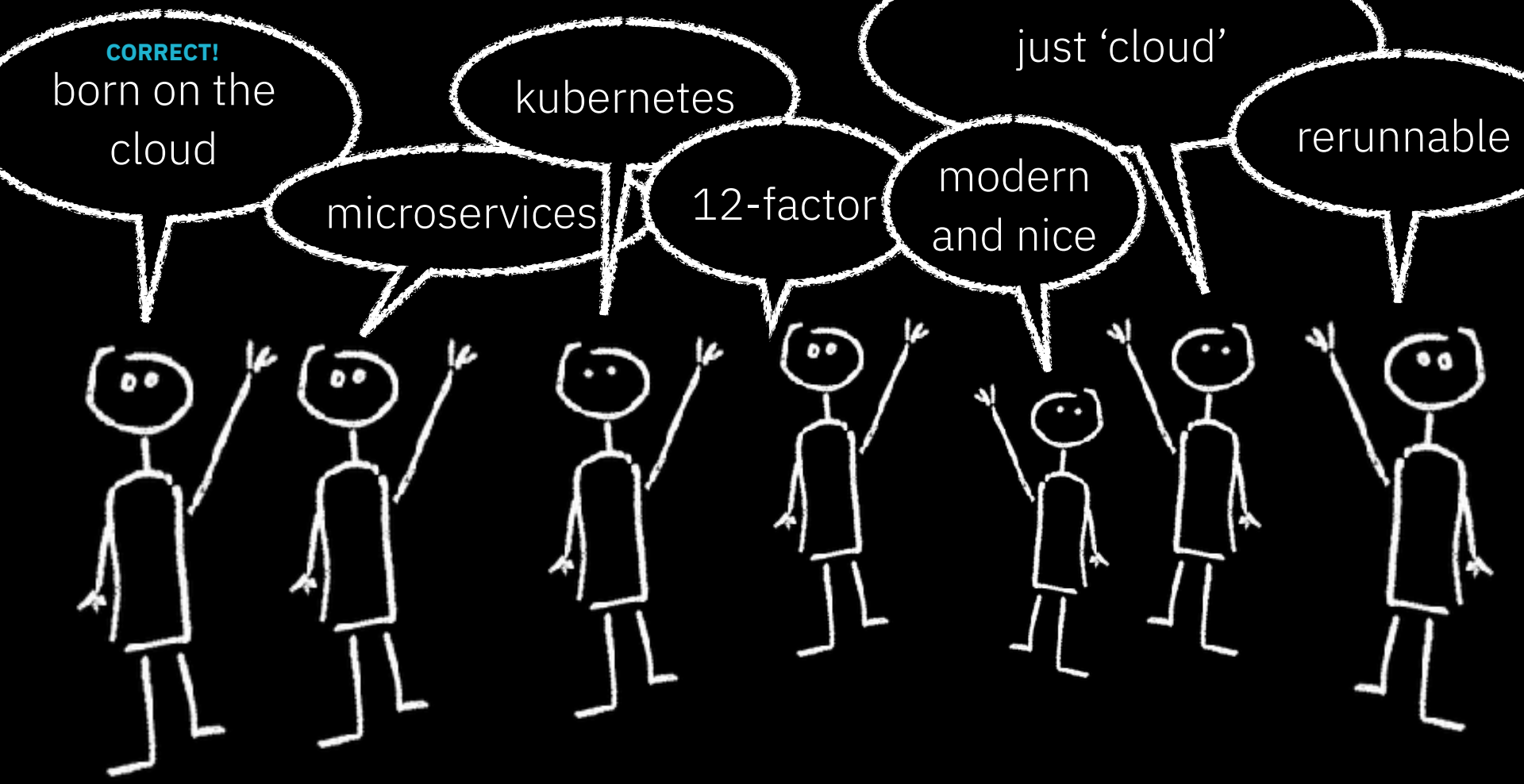

rerunnable

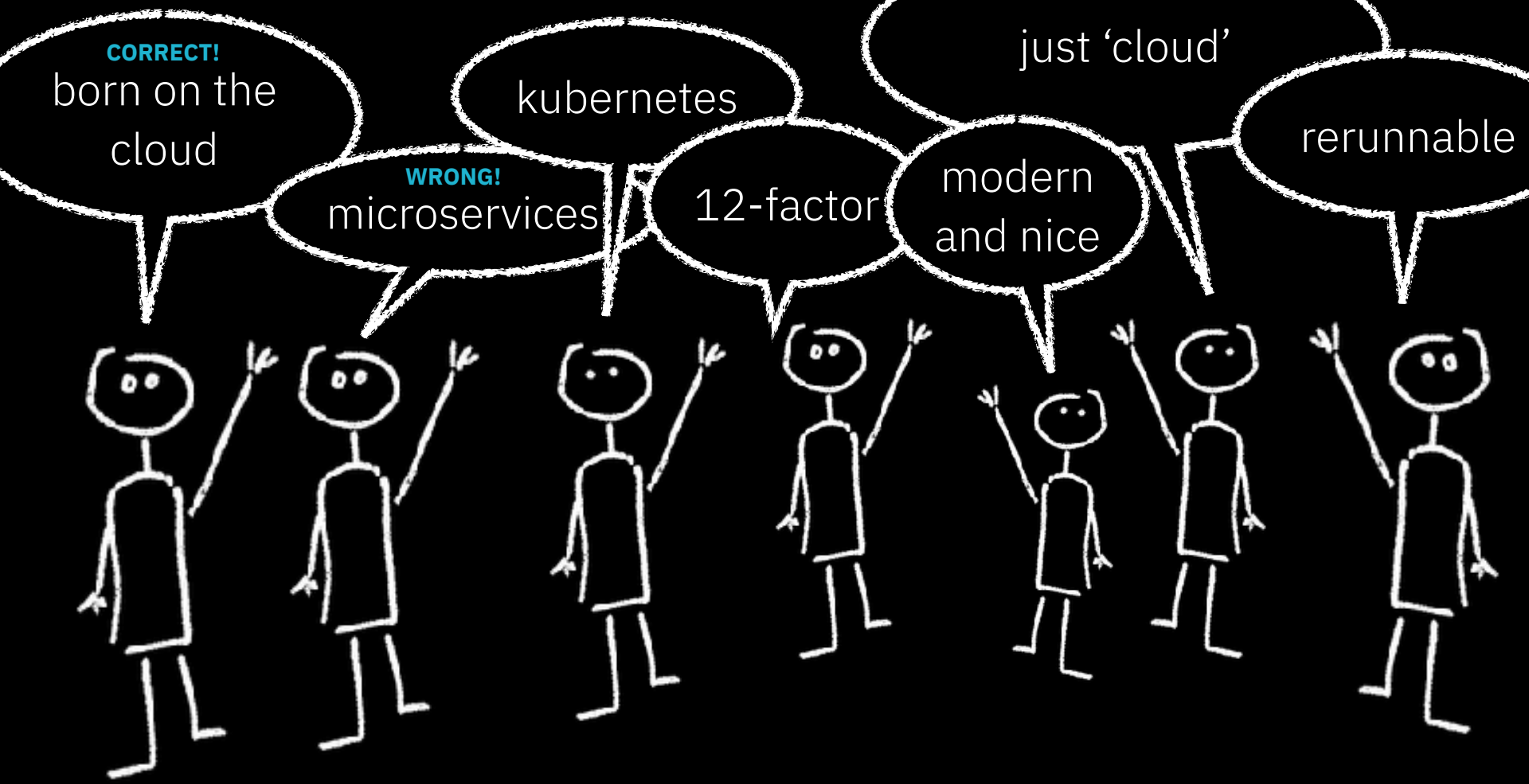

done
with devops
(don't forget devops)
marketing
buzzword
our
legacy app, but
now it's on the
cloud
microservices,
but with smart
proxies

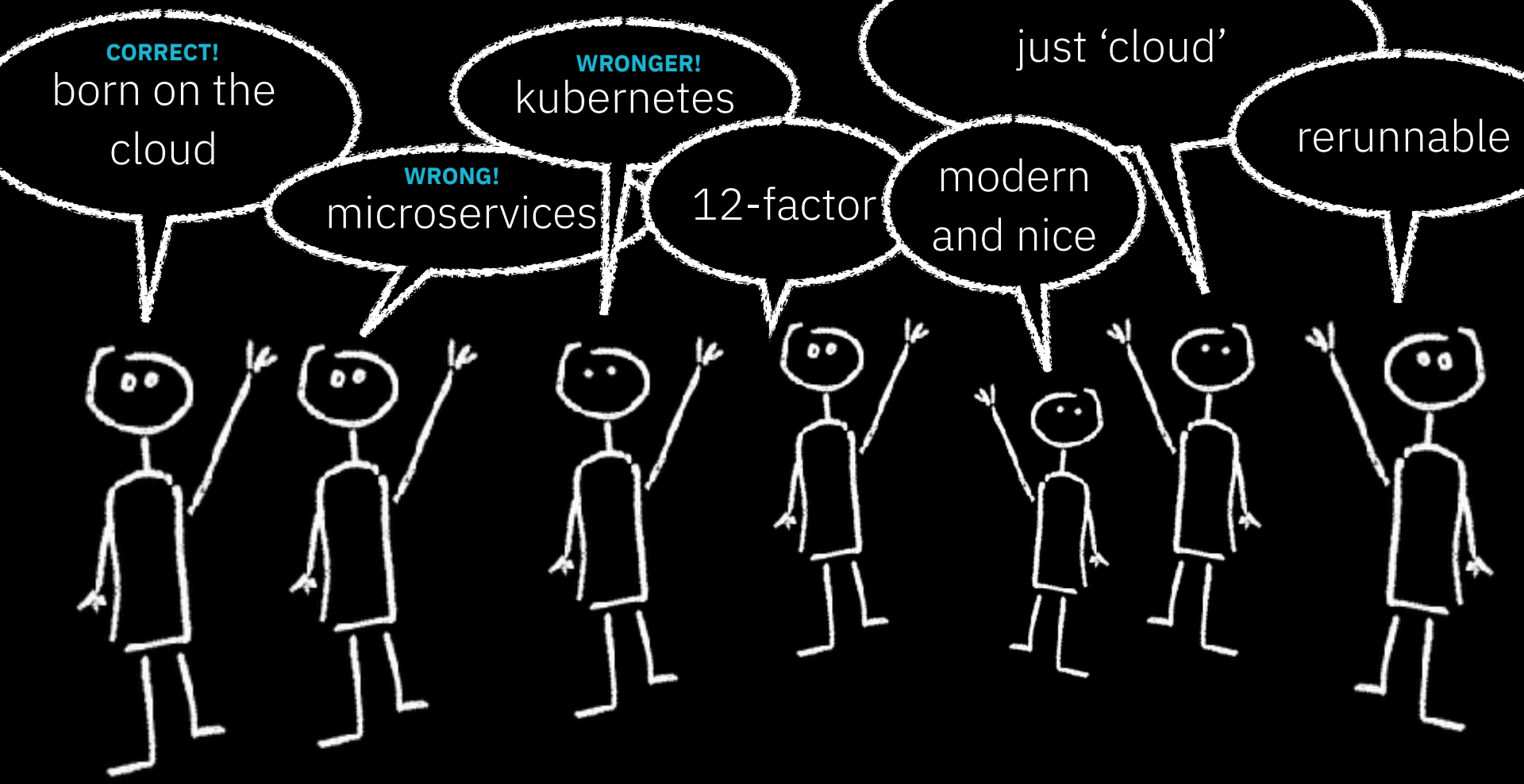

born on the cloud
kubernetes
just ‘cloud’
rerunnable
microservices
12-factor
modern and nice

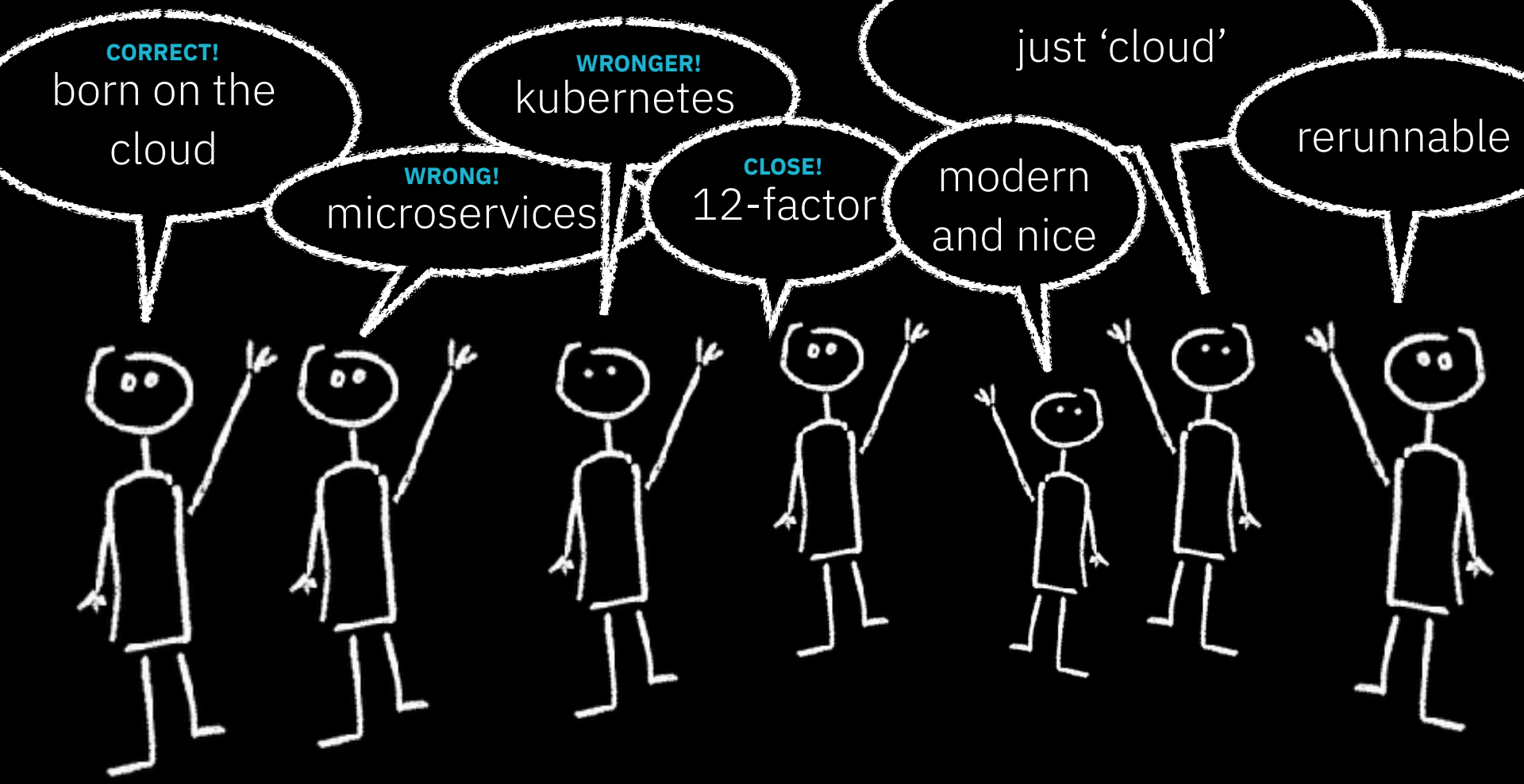
two years ago, I **totally** knew what cloud native was

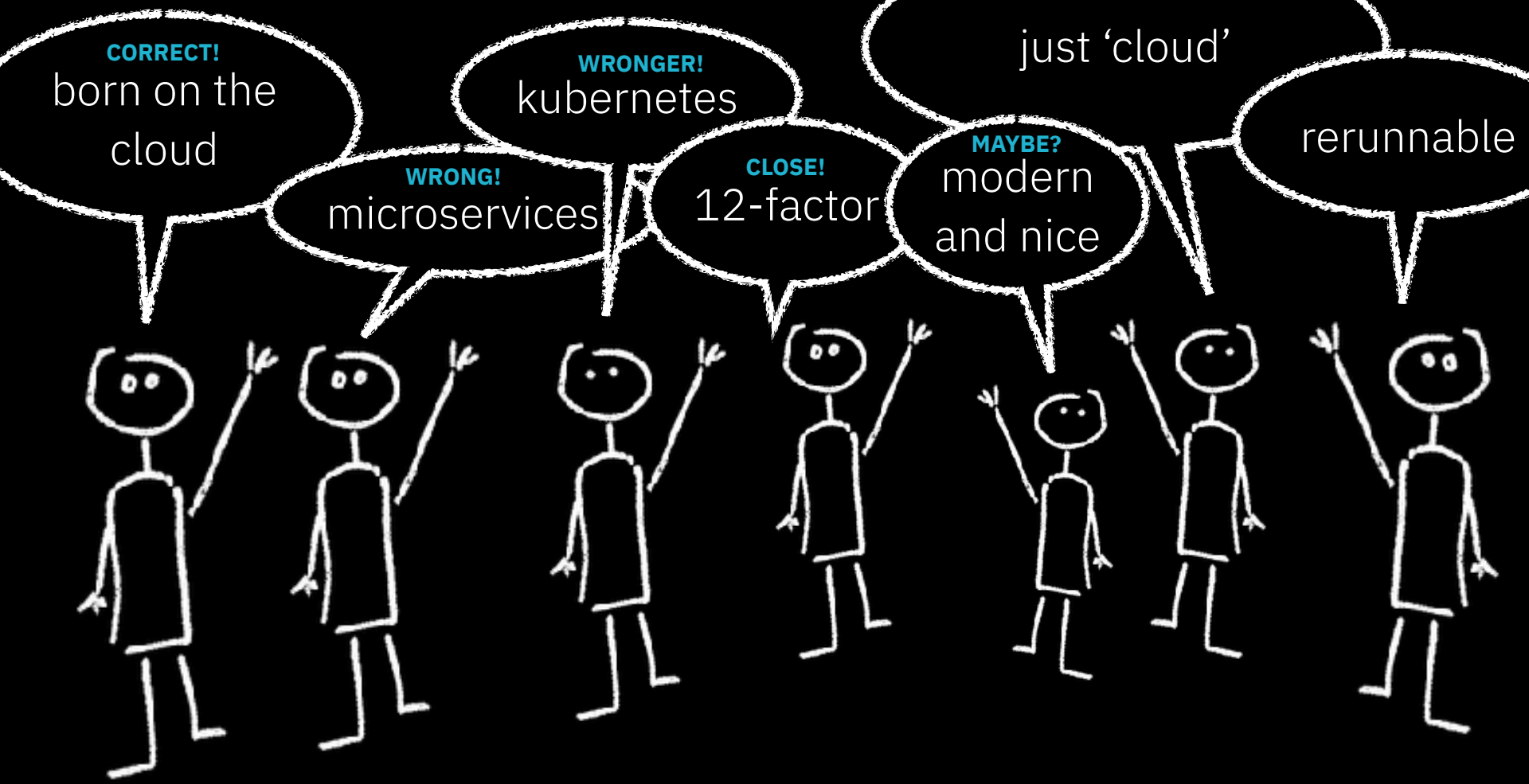

born on the cloud
kubernetes
just ‘cloud’
rerunnable
microservices
12-factor
modern and nice

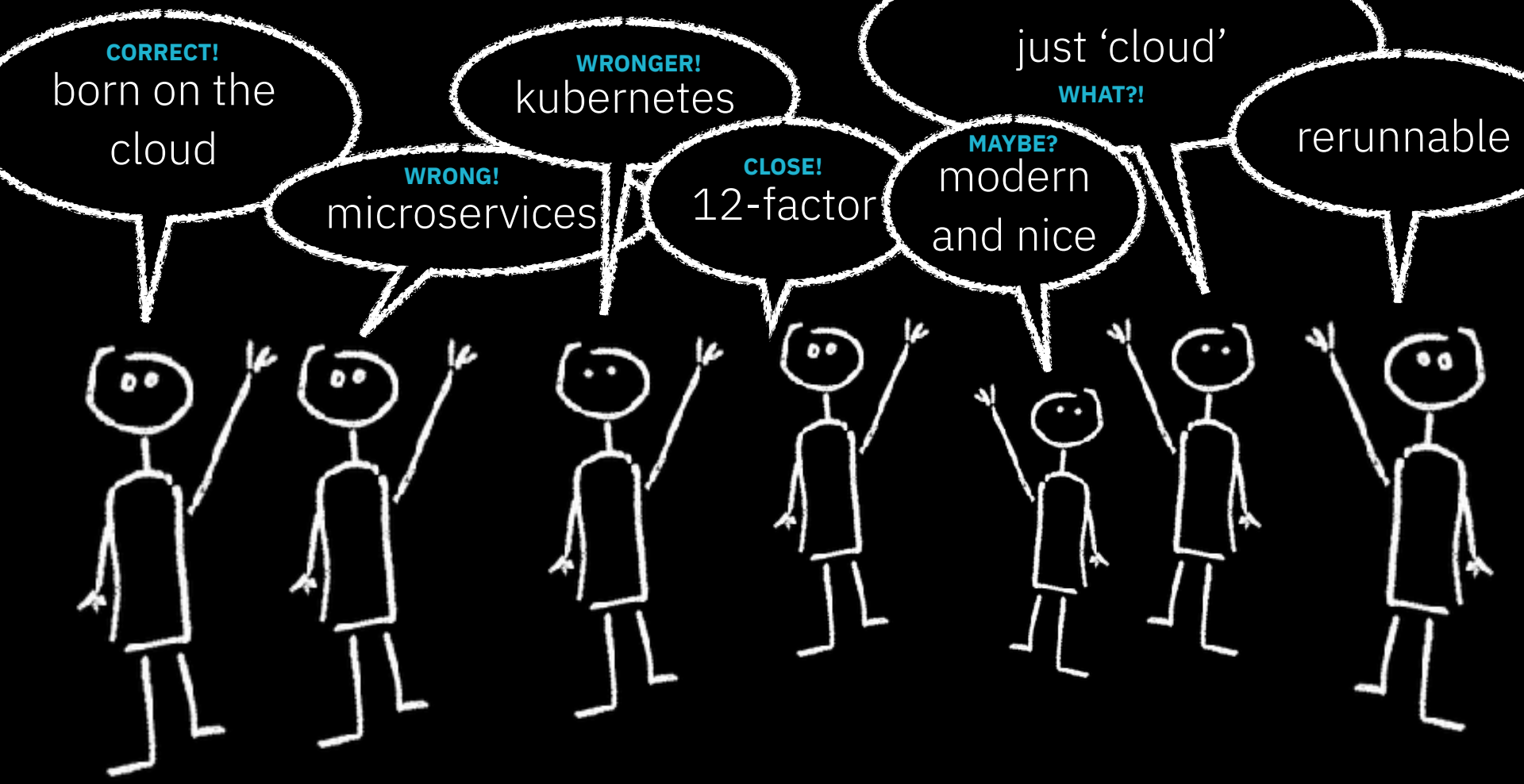

CORRECT!
born on the cloud
kubernetes
just ‘cloud’
rerunnable
microservices
12-factor
modern and nice

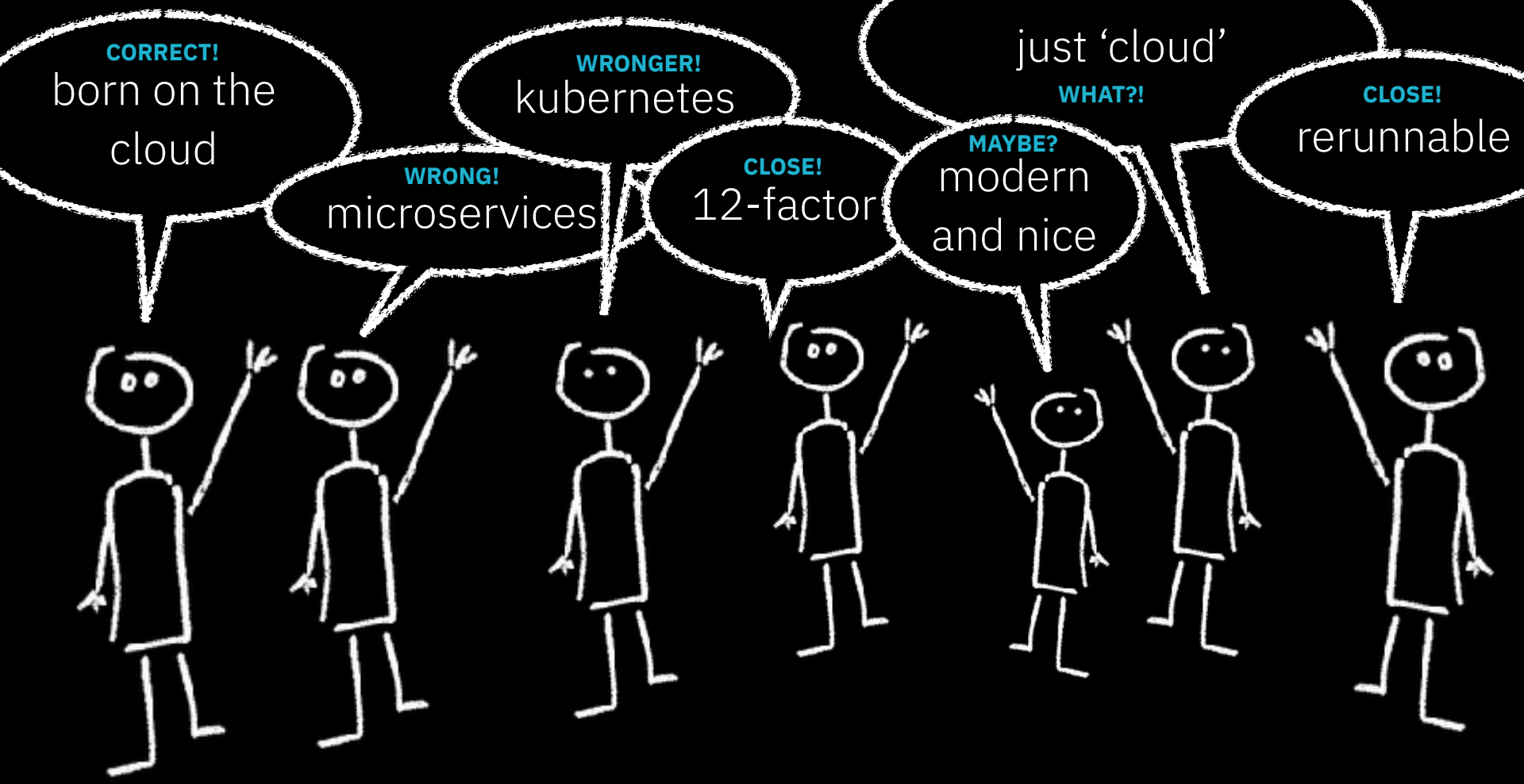

CORRECT!
born on the cloud
kubernetes
just ‘cloud’
WRONG!
microservices
12-factor
modern and nice
rerunnable


CORRECT!
born on the cloud
WRONG!
microservices
WRONGER!
kubernetes
12-factor
just ‘cloud’
modern and nice
rerunnable

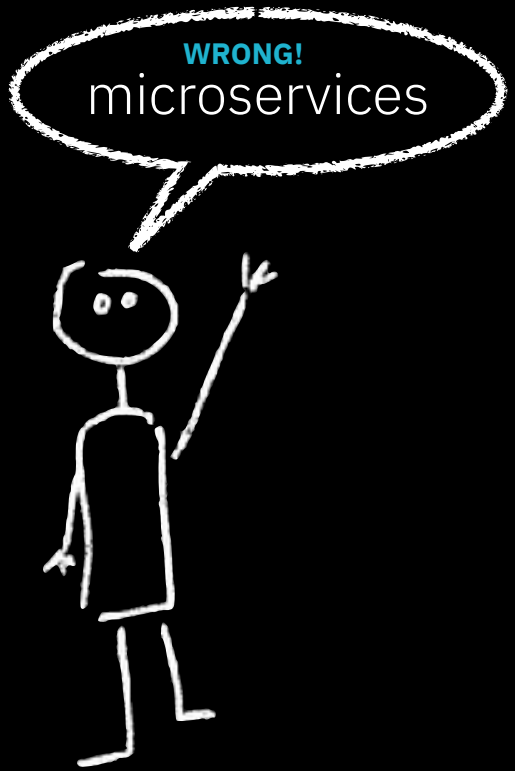

CORRECT!
born on the cloud
WRONG!
microservices
WRONGER!
kubernetes
CLOSE!
12-factor
just ‘cloud’
modern and nice
rerunnable


CORRECT!
born on the cloud
WRONG!
microservices
WRONGER!
kubernetes
CLOSE!
12-factor
MAYBE?
modern and nice
just ‘cloud’
rerunnable

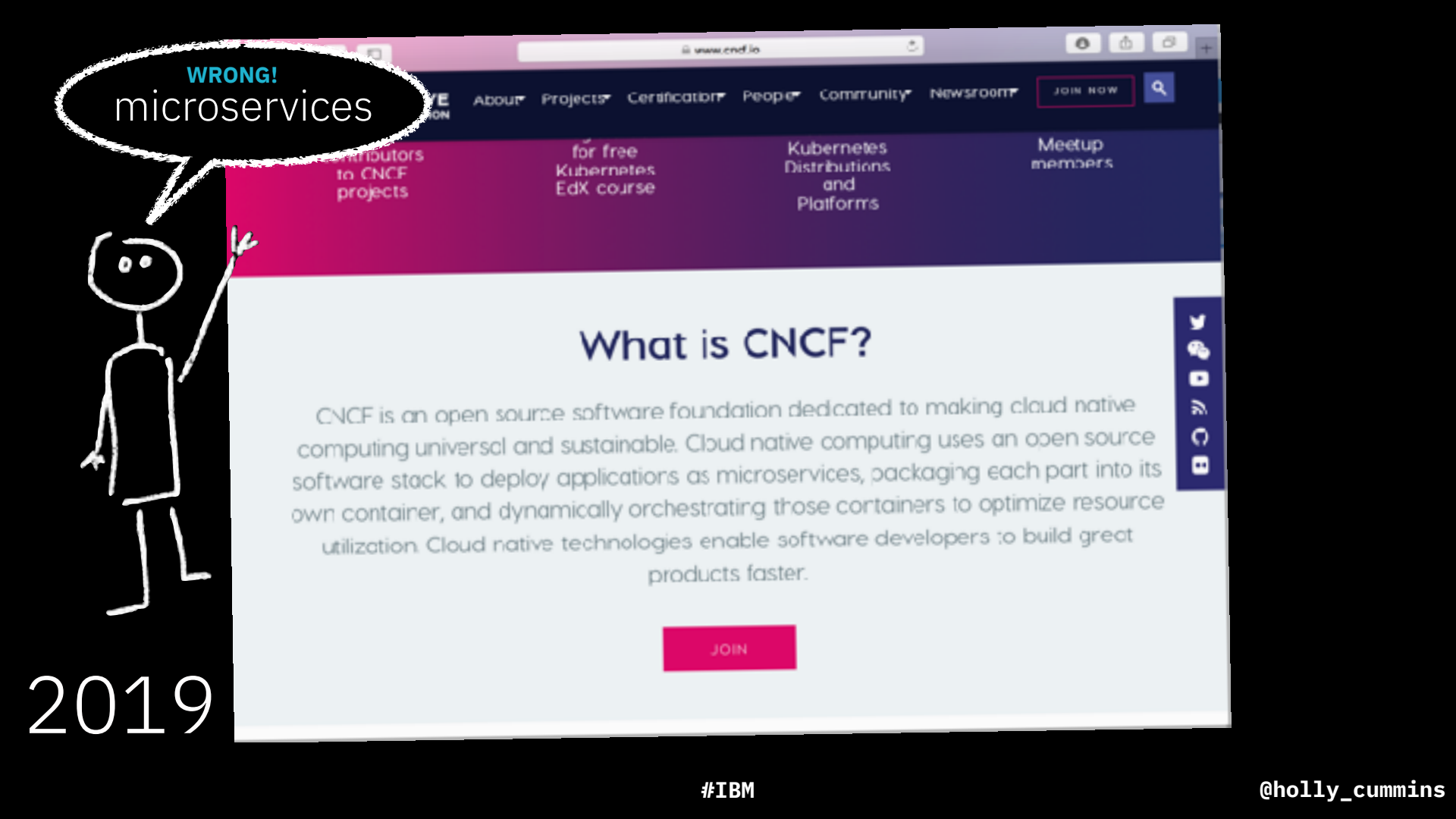

CORRECT!
born on the cloud
WRONG!
microservices
WRONGER!
kubernetes
CLOSE!
12-factor
MAYBE?
modern and nice
WHAT?!
just ‘cloud’
rerunnable

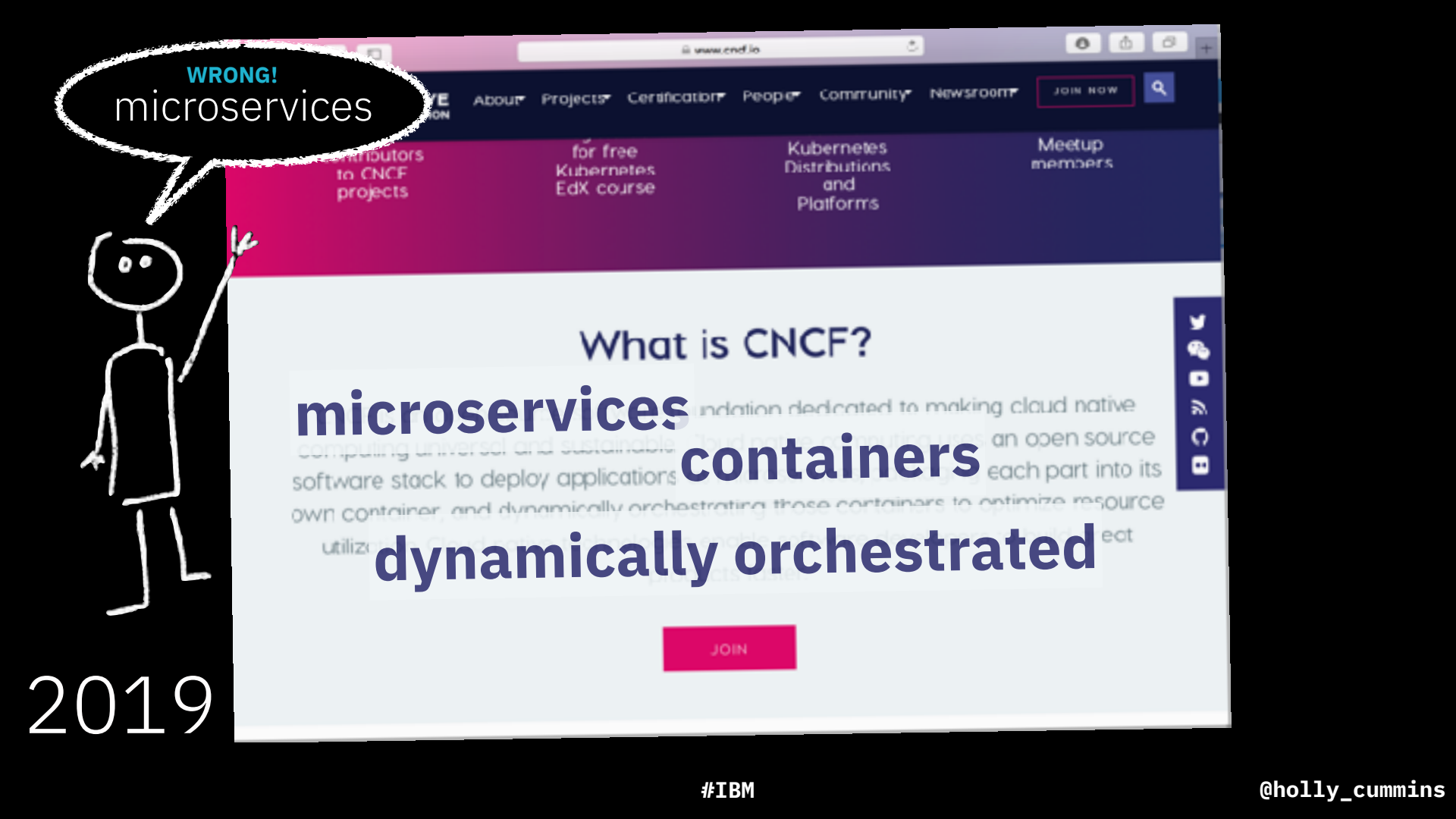

CORRECT!
born on the cloud
WRONG!
microservices
WRONGER!
kubernetes
CLOSE!
12-factor
MAYBE?
modern and nice
WHAT?!
just ‘cloud’
CLOSE!
rerunnable

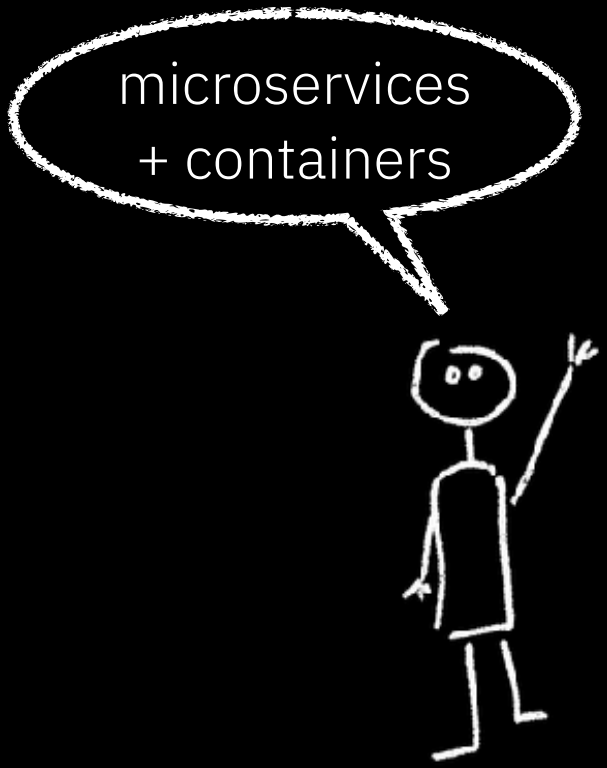
2019



2019


WRONG!
microservices
About
Projects
Certification
People
Community
Newsroom
JOIN NOW
for free
Kubernetes
EdX course
Kubernetes
Distributions
and
Platforms
Meetup
members
What is CNCF?
CNCF is an open source software foundation dedicated to making cloud native computing universal and sustainable. Cloud native computing uses an open source software stack to deploy applications as microservices, packaging each part into its own container, and dynamically orchestrating those containers to optimize resource utilization. Cloud native technologies enable software developers to build great products faster.
JOIN
2019


WRONG!
microservices
About
Projects
Certification
People
Community
Newsroom
JOIN NOW
for free
Kubernetes
EdX course
Kubernetes
Distributions
and
Platforms
Meetup
members
What is CNCF?
microservices
containers
dynamically orchestrated
JOIN
2019



CNCF

uh oh

2 years ago

"the cloud native computing foundation is **wrong** ... about cloud native."

Dr Holly

2 years ago

"the cloud native computing foundation is **wrong** ... about cloud native."

Dr Holly

Dr Holly

Sam Newman
@samnewman

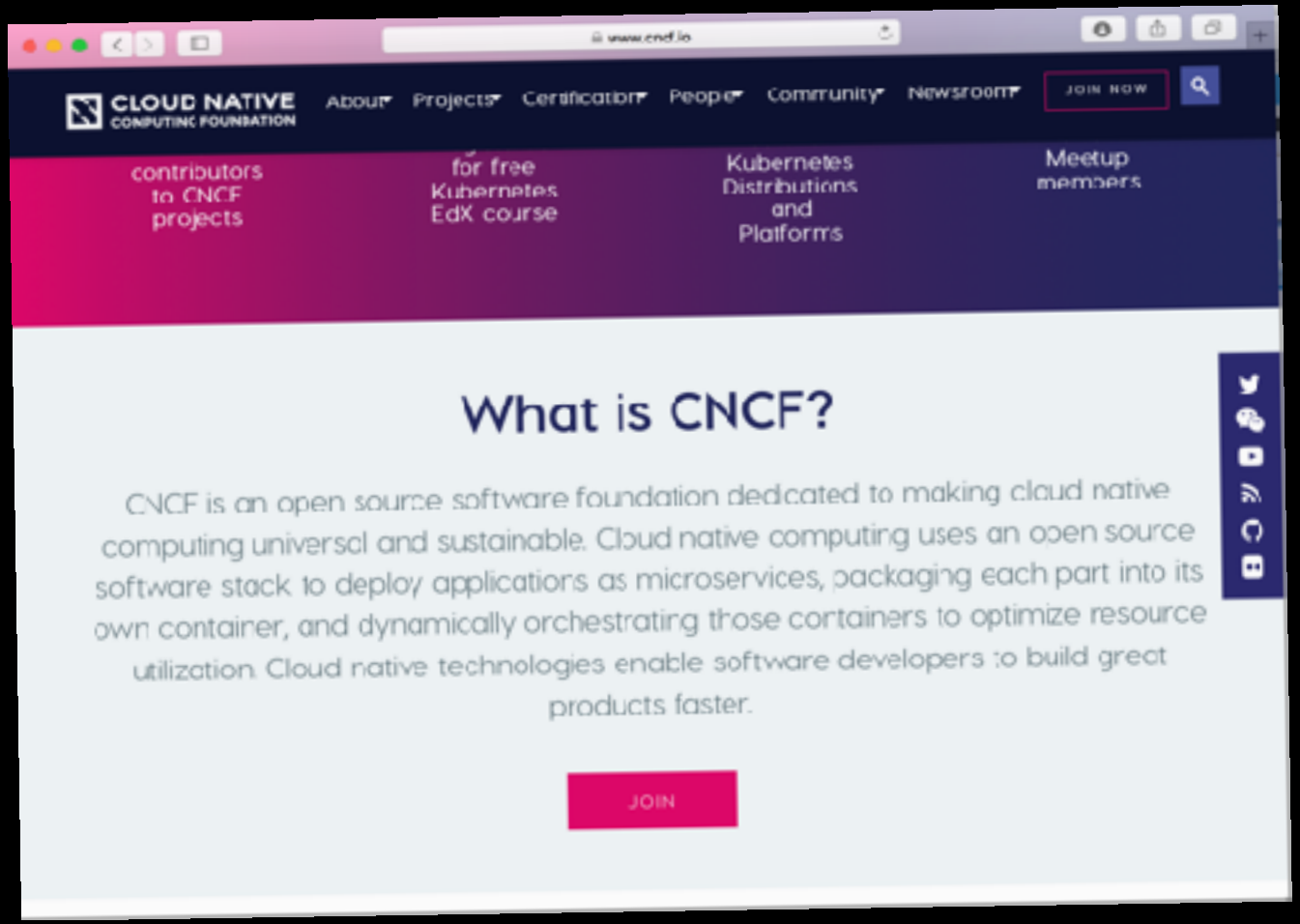
Interesting side effect of the Cloud Native Foundation is now that I'm commonly speaking to people who believe it can't be cloud native without Kubernetes 😕

10:38 PM · Nov 19, 2020 · Tweetbot for iOS

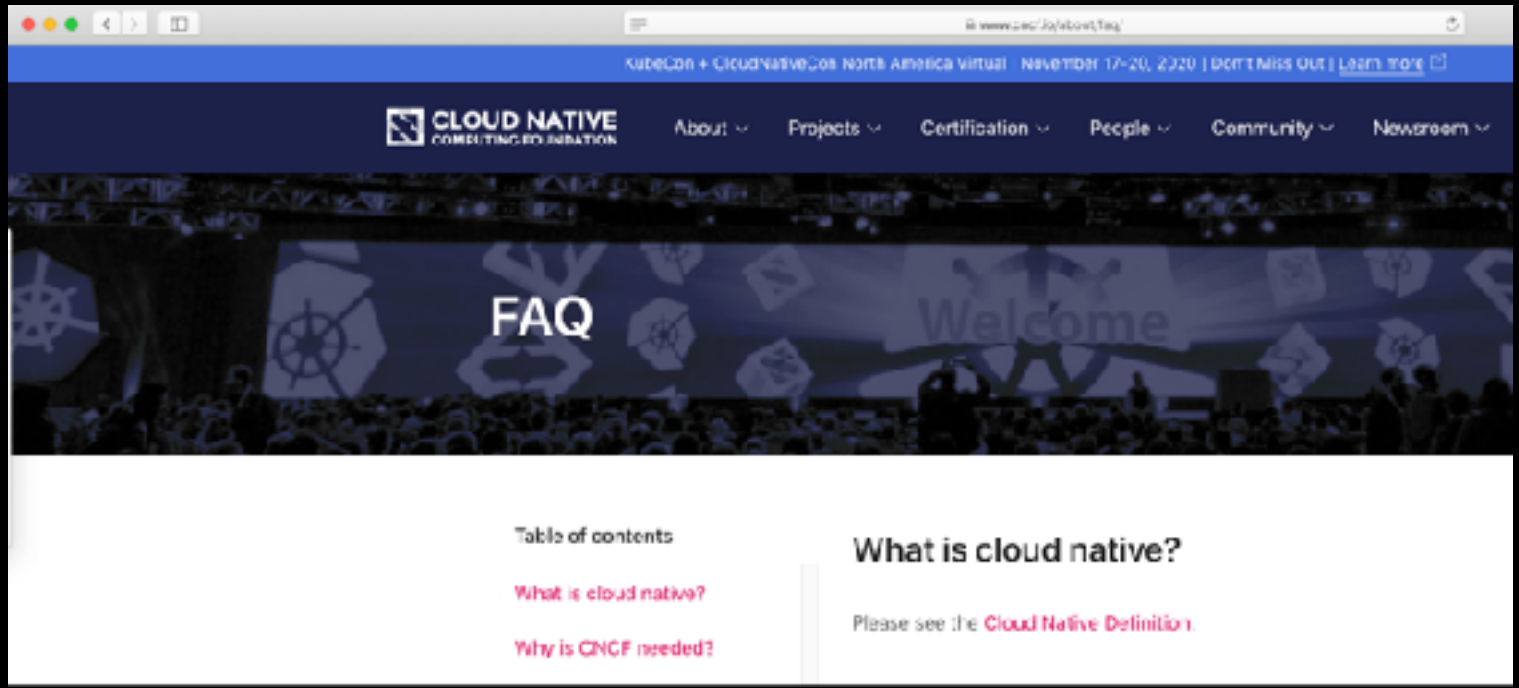
15 Retweets **4** Quote Tweets **130** Likes

does the CNCF even know what cloud native is?

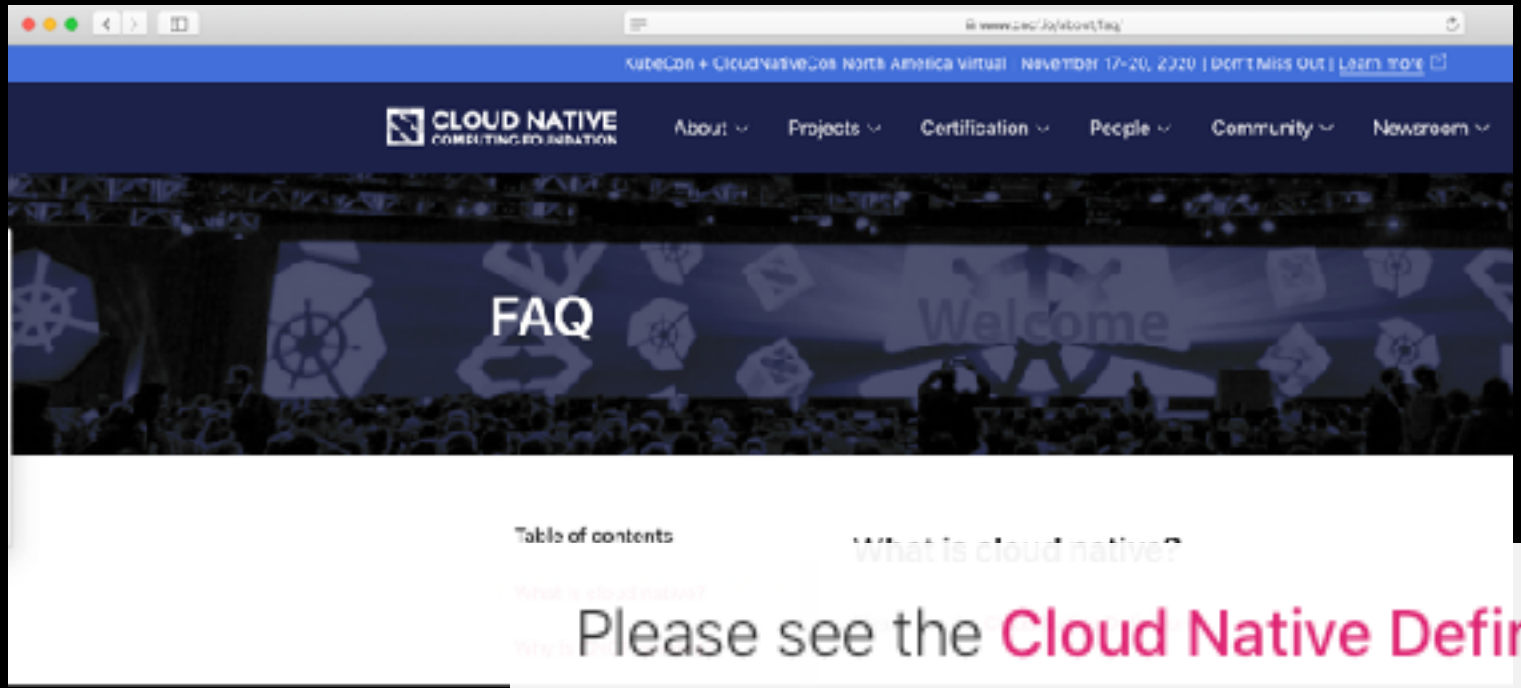
does the CNCF even agree what cloud native is?


www.cncf.io
CLOUD NATIVE
COMPUTING FOUNDATION
About
Projects
Certification
People
Community
Newsroom
JOIN NOW
contributors
to CNCF
projects
for free
Kubernetes
EdX course
Kubernetes
Distributions
and
Platforms
Meetup
members
What is CNCF?
CNCF is an open source software foundation dedicated to making cloud native computing universal and sustainable. Cloud native computing uses an open source software stack to deploy applications as microservices, packaging each part into its own container, and dynamically orchestrating those containers to optimize resource utilization. Cloud native technologies enable software developers to build great products faster.
JOIN

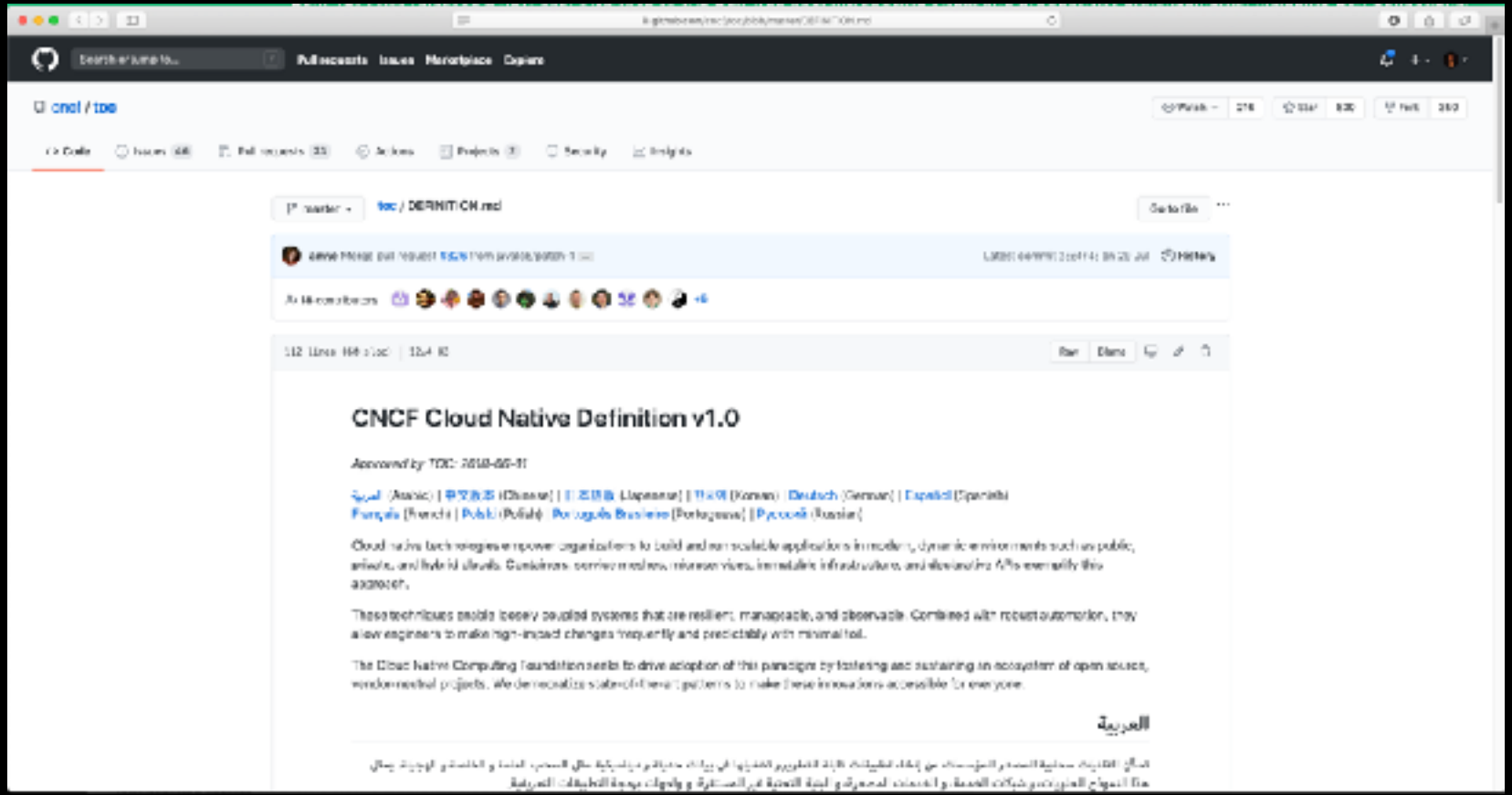
2019


CLOUD NATIVE
About
Projects
Certification
People
Community
Newsroom
FAQ
Welcome
Table of contents
What is cloud native?
Why is CNCF needed?
What is cloud native?
Please see the Cloud Native Definition

2020


CLOUD NATIVE
About
Projects
Certification
People
Community
Newsroom
FAQ
Welcome
Table of contents
What is cloud native?
Please see the Cloud Native Definition.

2020



CNCF Cloud Native Definition v1.0

Approved by TOC: 2018-06-11

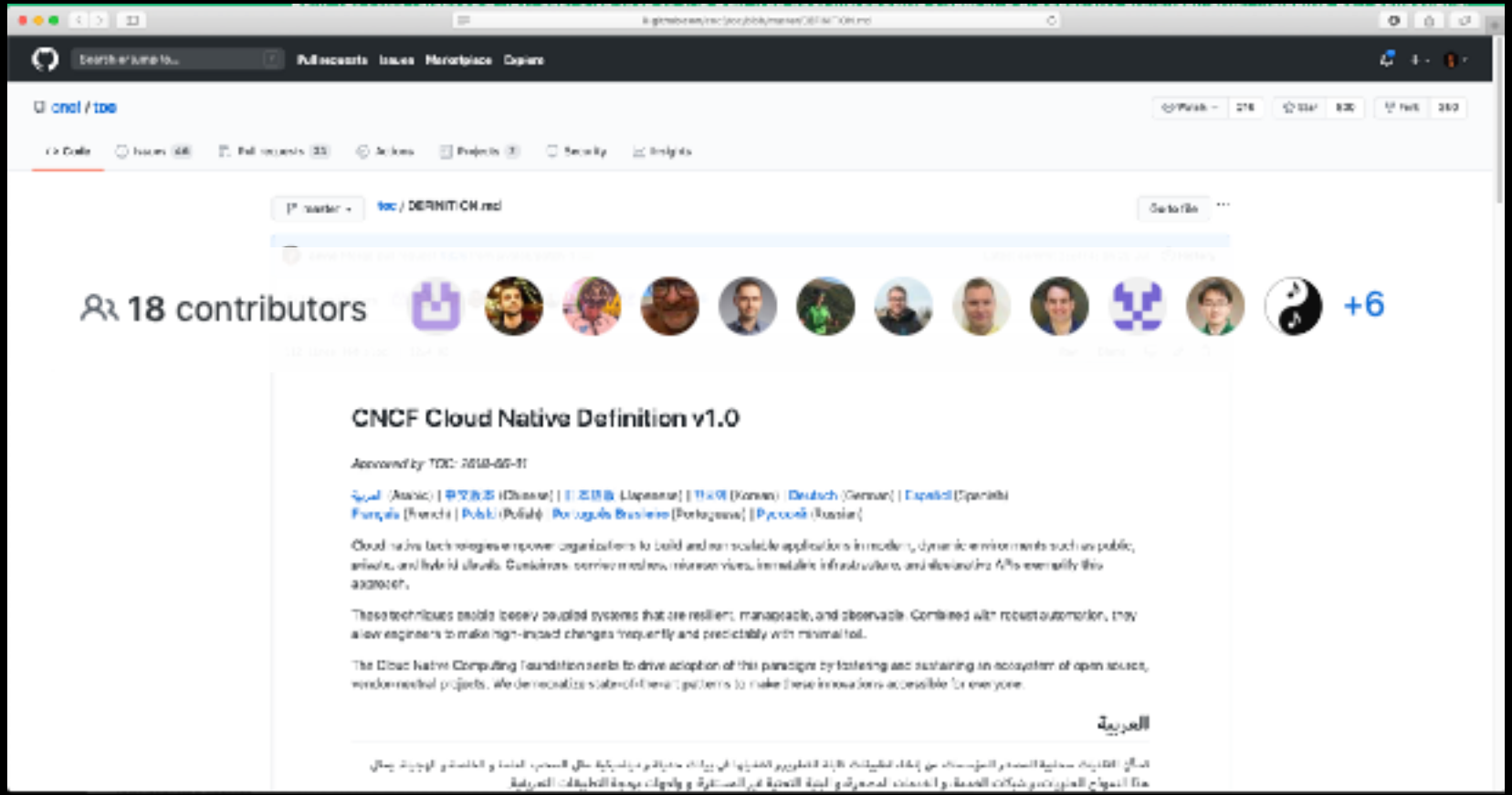
العربية (Arabic) | 中文简体 (Chinese) | 日本語 (Japanese) | 한국어 (Korean) | Deutsch (German) | Español (Spanish) Français (French) | Polski (Polish) | Português Brasileiro (Portuguese) | Русский (Russian)

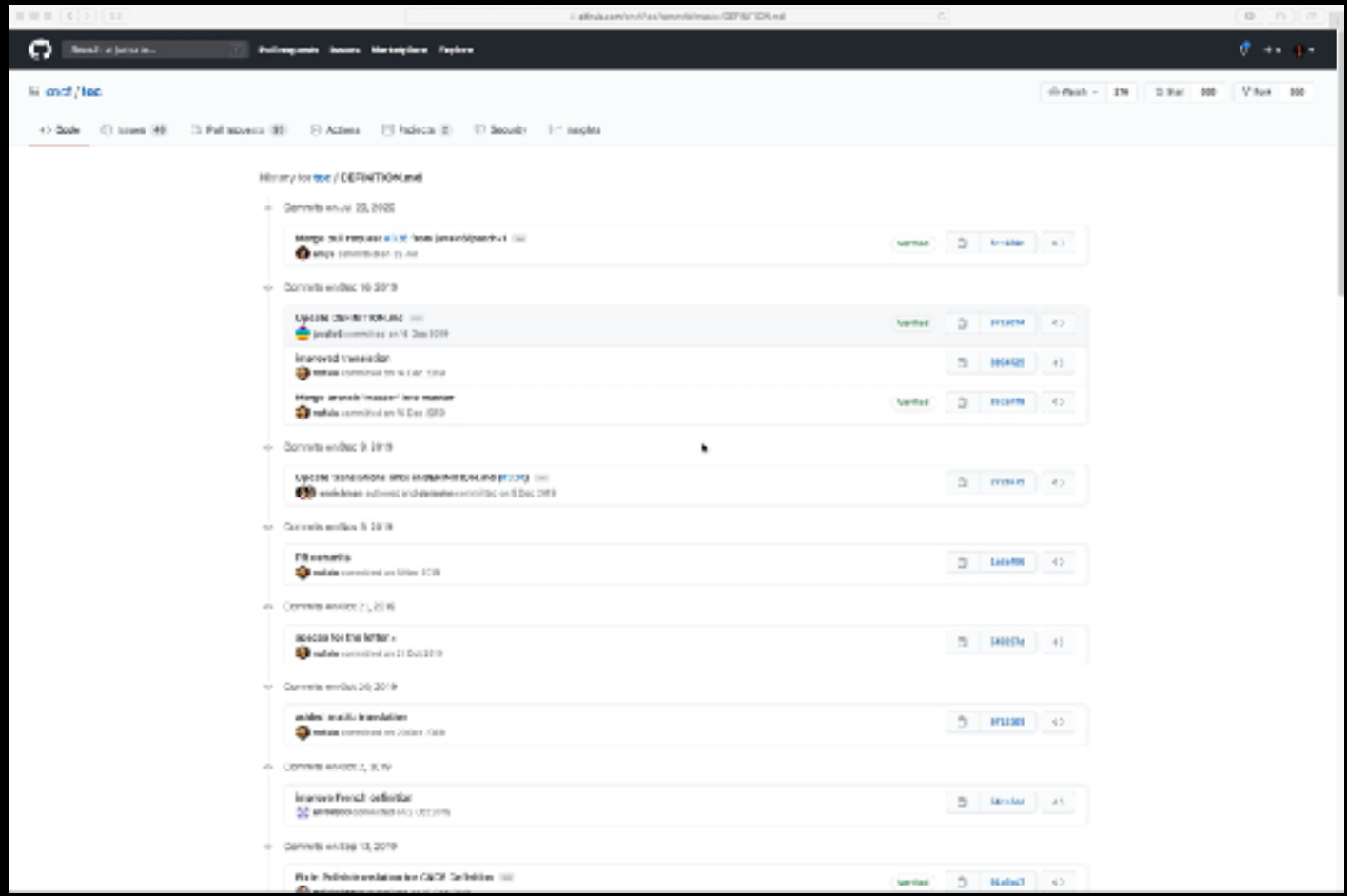
Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.

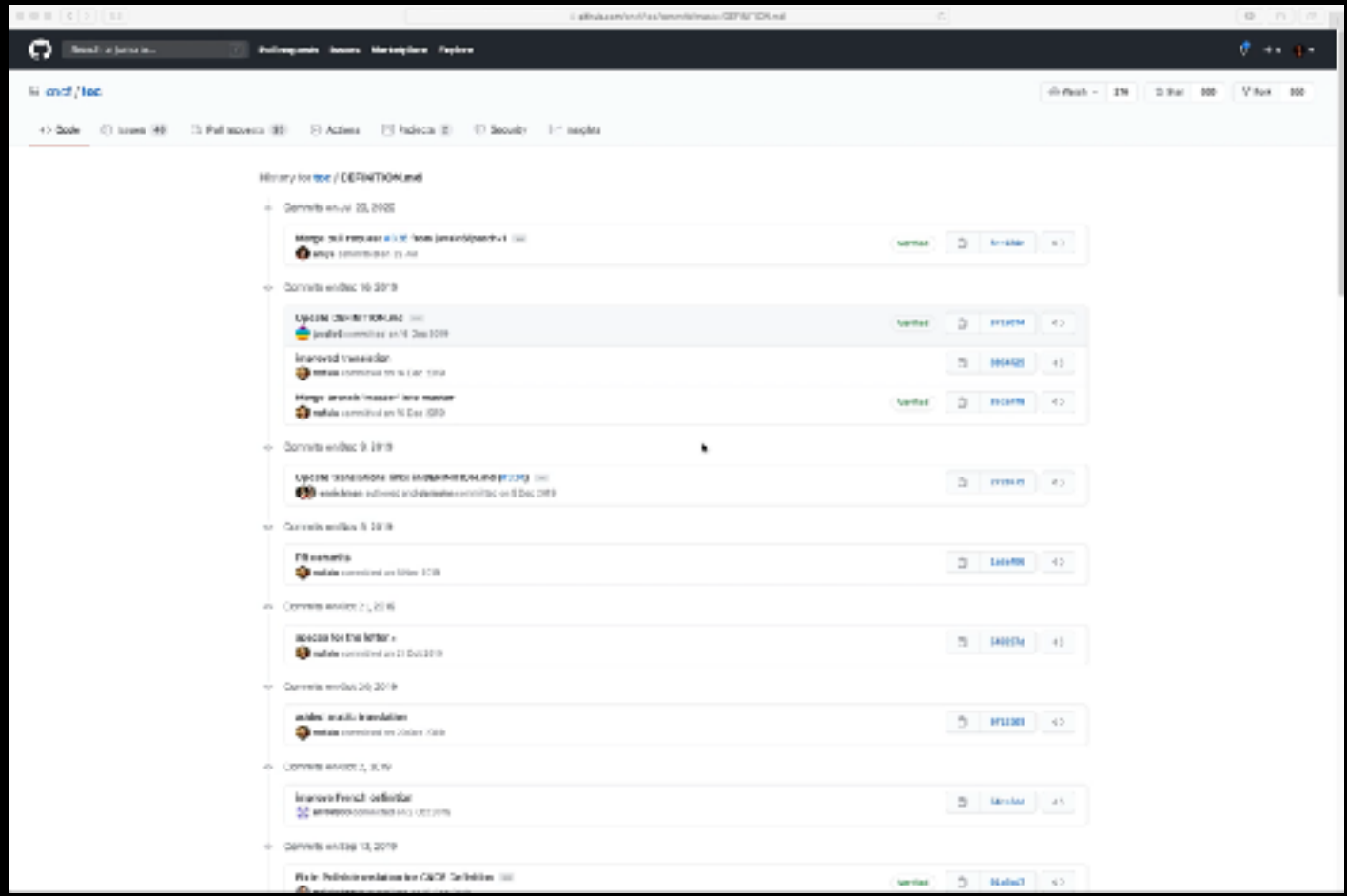
These techniques enable loosely coupled systems that are resilient, manageable, and observable. Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toil.

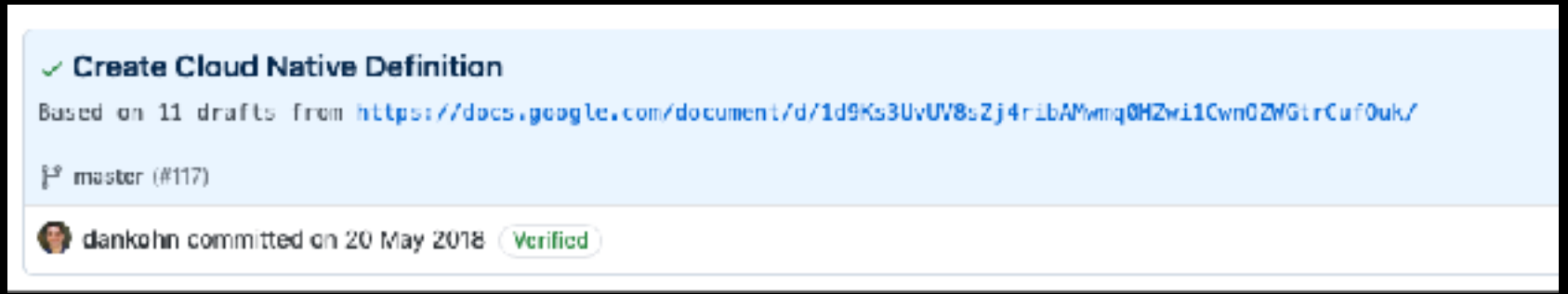
The Cloud Native Computing Foundation seeks to drive adoption of this paradigm by fostering and sustaining an ecosystem of open source, vendor-neutral projects. We democratize state-of-the-art patterns to make these innovations accessible for everyone.

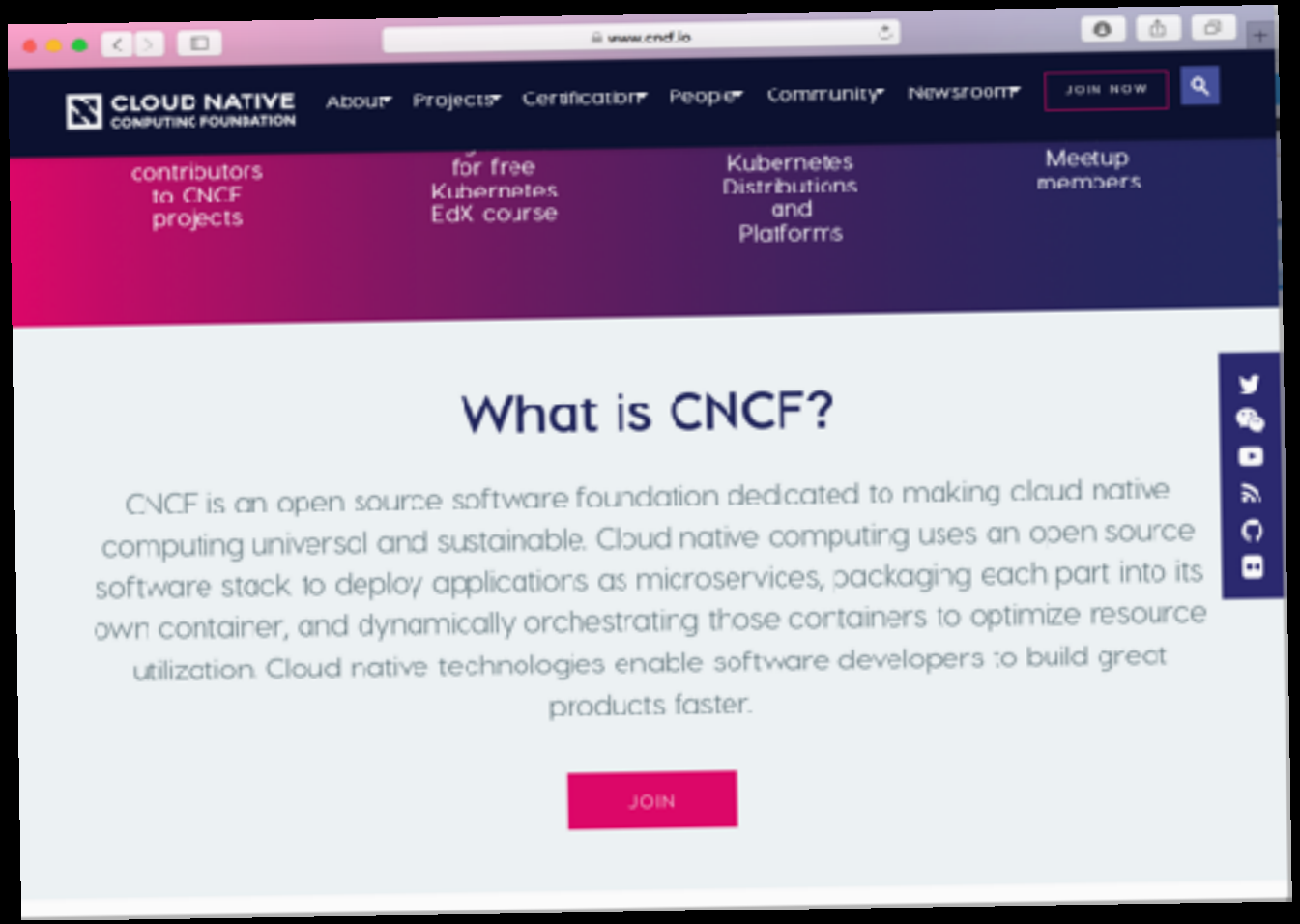
العربية


cncf / toc
18 contributors
+6
CNCF Cloud Native Definition v1.0

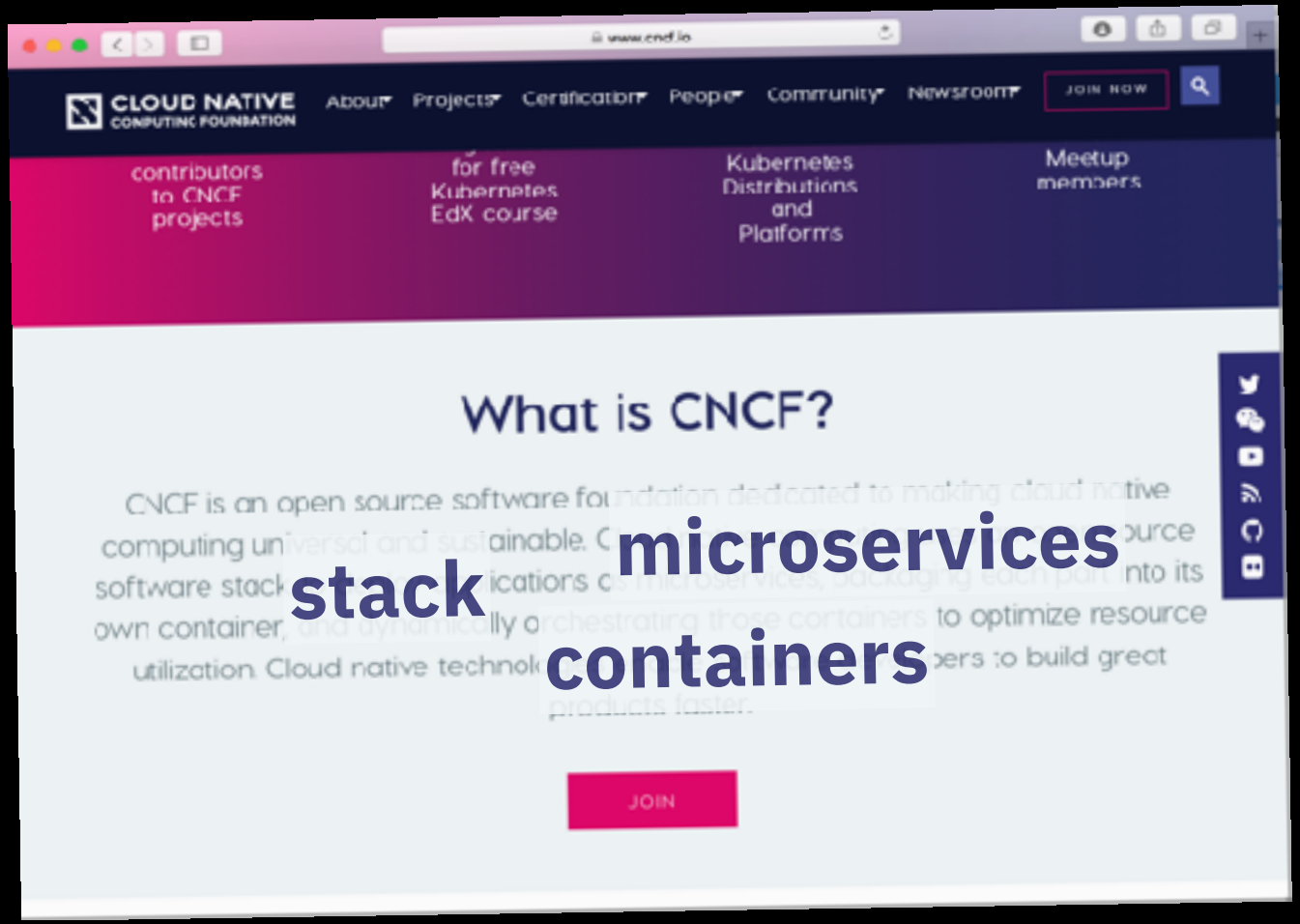




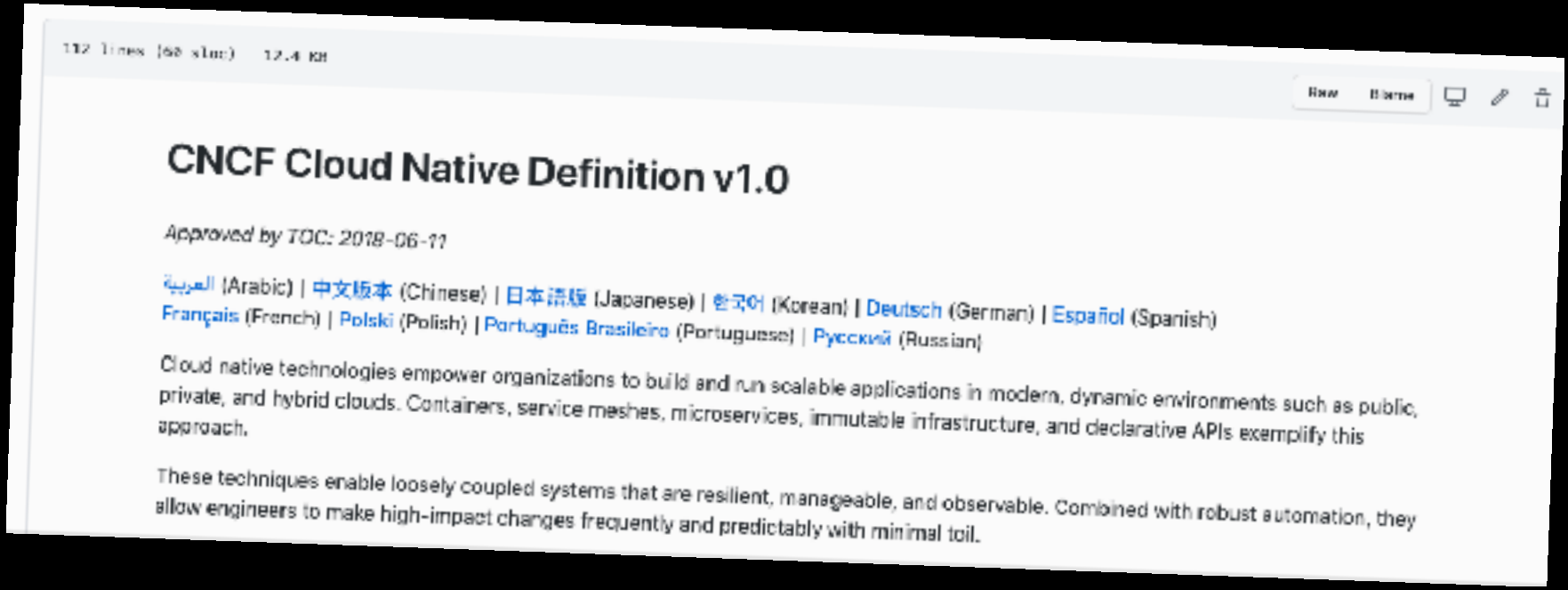

Create Cloud Native Definition
Based on 11 drafts from https://docs.google.com/document/d/1d9Ks3UvUV8sZj4rLbAMwmq0HZwi1CwnOZWGtrCuf0uk/
master (#117)
dankohn committed on 20 May 2018
Verified


www.cncf.io
CLOUD NATIVE
COMPUTING FOUNDATION
About
Projects
Certification
People
Community
Newsroom
JOIN NOW
contributors
to CNCF
projects
for free
Kubernetes
EdX course
Kubernetes
Distributions
and
Platforms
Meetup
members
What is CNCF?
CNCF is an open source software foundation dedicated to making cloud native computing universal and sustainable. Cloud native computing uses an open source software stack to deploy applications as microservices, packaging each part into its own container, and dynamically orchestrating those containers to optimize resource utilization. Cloud native technologies enable software developers to build great products faster.
JOIN

2019


CLOUD NATIVE
COMPUTING FOUNDATION
About
Projects
Certification
People
Community
Newsroom
JOIN NOW
contributors to CNCF projects
for free Kubernetes EdX course
Kubernetes Distributions and Platforms
Meetup members
What is CNCF?
CNCF is an open source software fou
computing uni
software stack
own container
utilization. Cloud native technol
stack
microservices
containers
JOIN

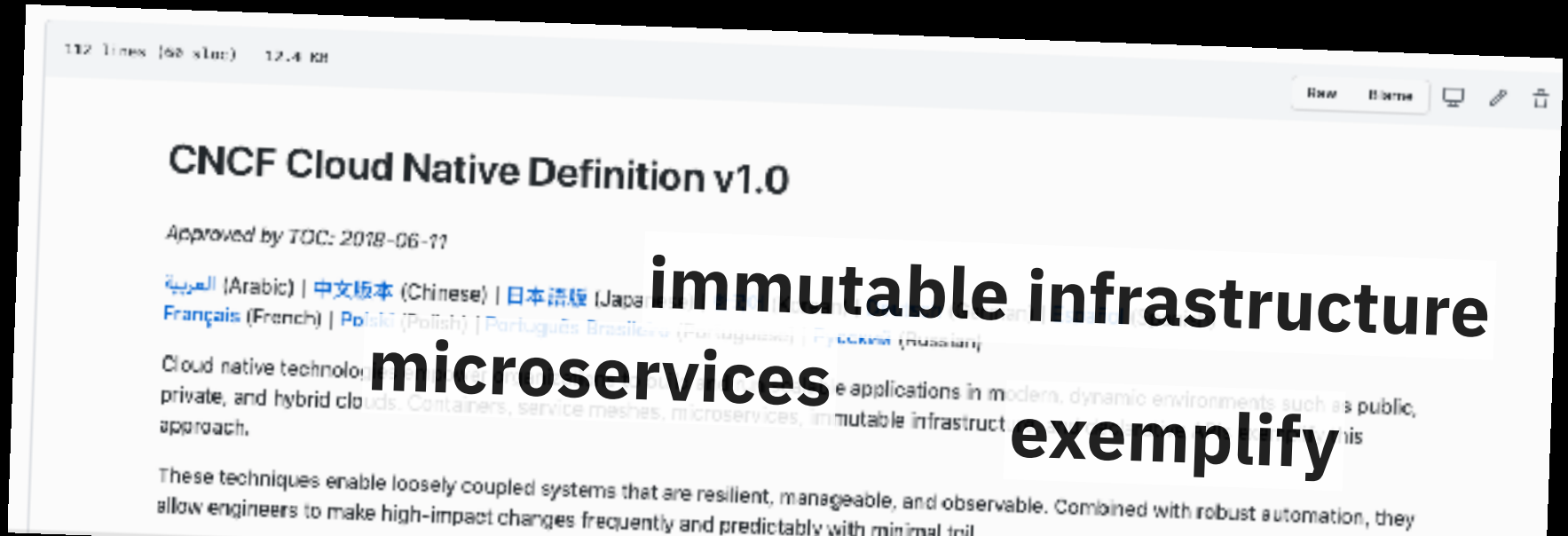
2019



2020

IBM **Garage**

@holly_cummins



2020

IBM **Garage**

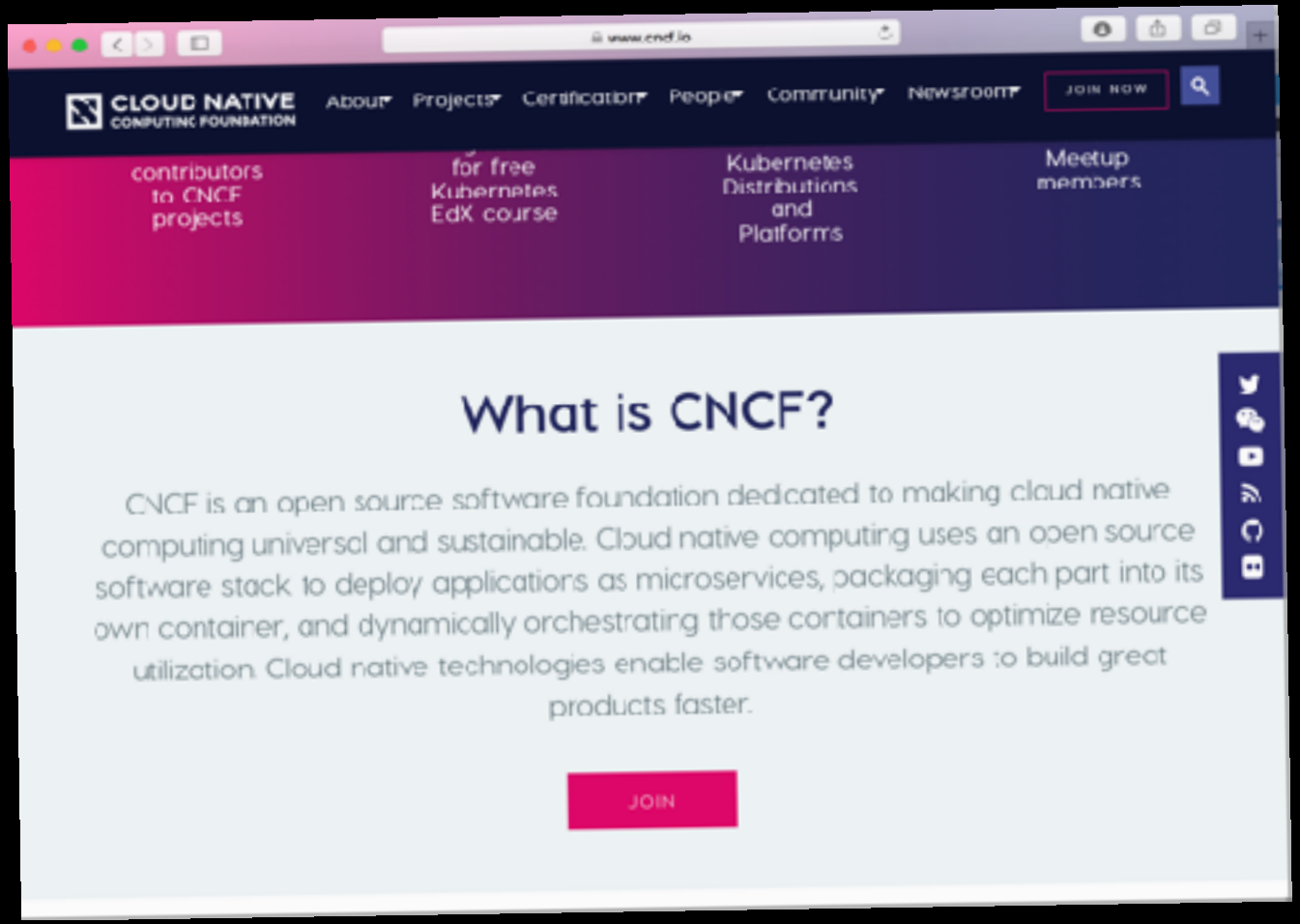
@holly_cummins

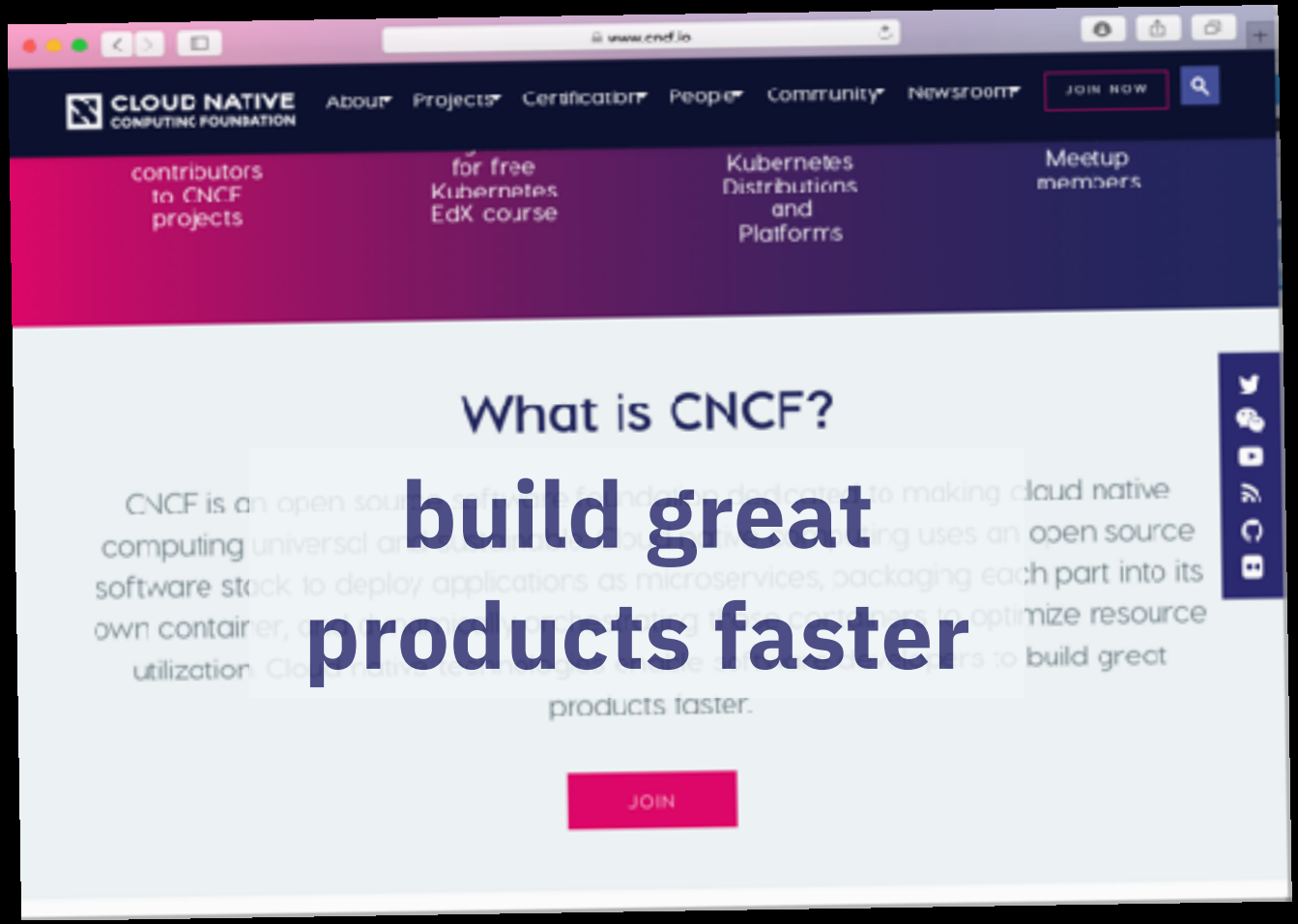
does the definition of cloud native even **matter**?

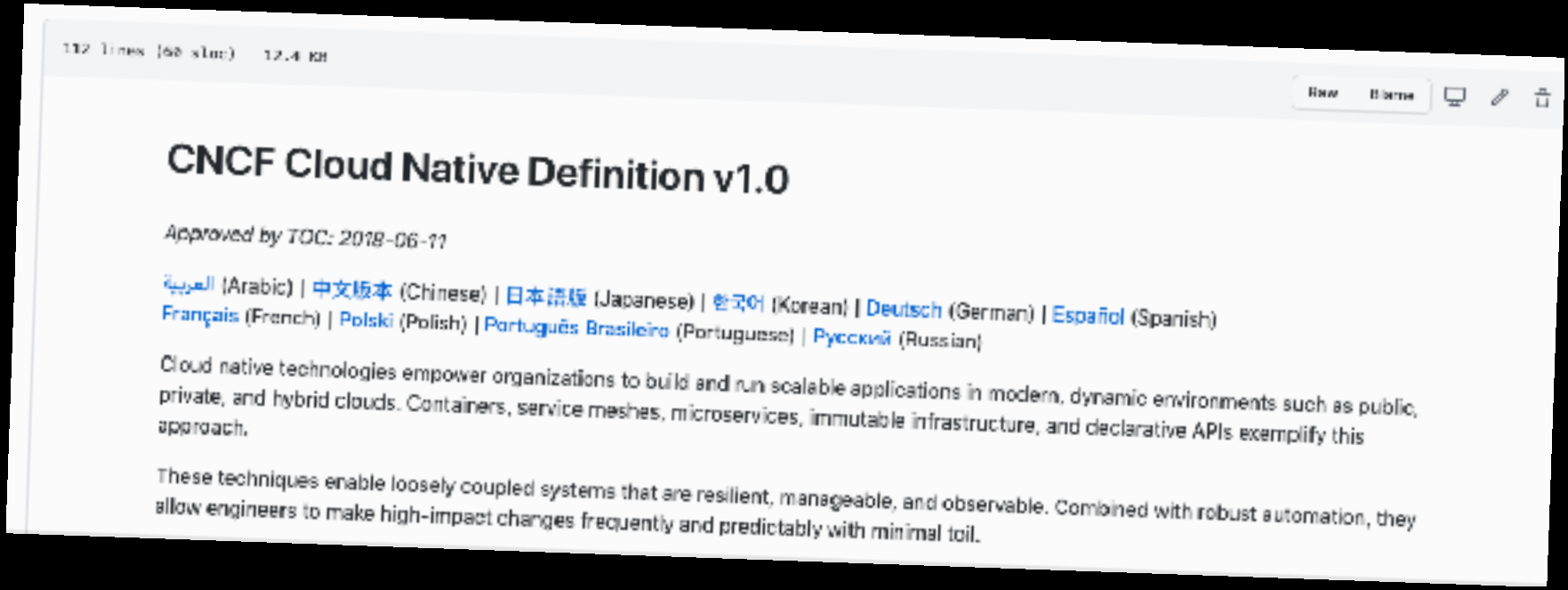
what matters:

the why?

what **problem** are
we trying to solve?


www.cncf.io
CLOUD NATIVE
COMPUTING FOUNDATION
About
Projects
Certification
People
Community
Newsroom
JOIN NOW
contributors
to CNCF
projects
for free
Kubernetes
EdX course
Kubernetes
Distributions
and
Platforms
Meetup
members
What is CNCF?
CNCF is an open source software foundation dedicated to making cloud native computing universal and sustainable. Cloud native computing uses an open source software stack to deploy applications as microservices, packaging each part into its own container, and dynamically orchestrating those containers to optimize resource utilization. Cloud native technologies enable software developers to build great products faster.
JOIN


CLOUD NATIVE
COMPUTING FOUNDATION
About
Projects
Certification
People
Community
Newsroom
JOIN NOW
contributors
to CNCF
projects
for free
Kubernetes
EdX course
Kubernetes
Distributions
and
Platforms
Meetup
members
What is CNCF?
build great
products faster
JOIN



2020

IBM **Garage**

@holly_cummins

make high-impact changes frequently and predictably with minimal toil

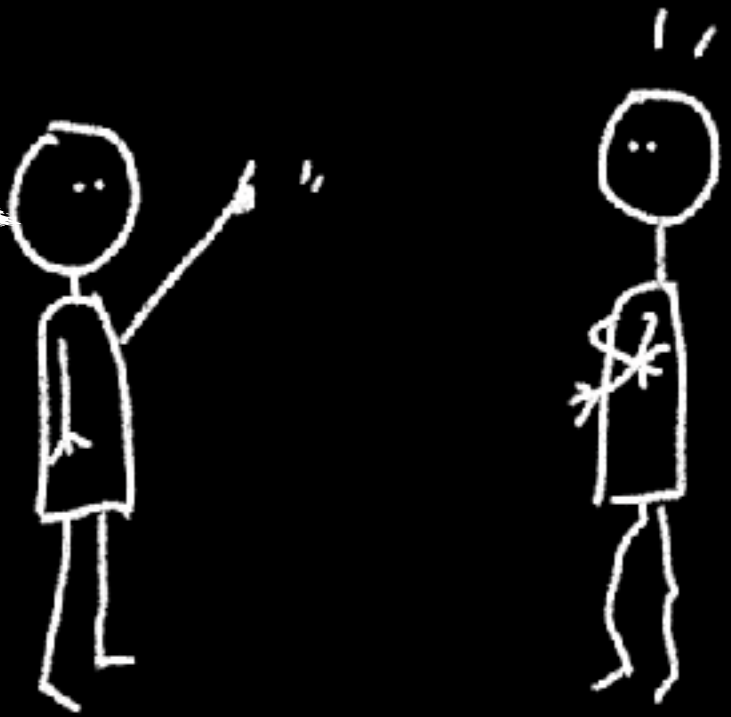
2020

how it goes wrong

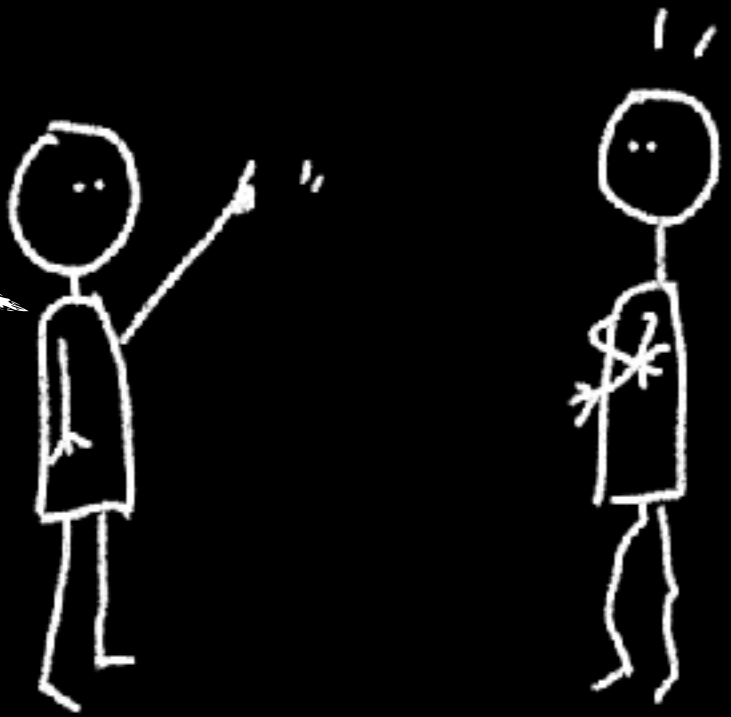
fail

the muddy goal

why is the cloud **only** saving us money, Bob?



why are there no **microservices** in this cloud native app Alice?



fail

microservices envy

microservices are not the **goal**

microservices
are not the **goal**

they are the **means**

microservices
are not the **goal**

they are **a** means

containers are a good base

it’s not a **competition** to see how many you can have

containers are a good base

“we’re going too slowly.

we need to get rid of COBOL and make microservices!”

“we’re going too slowly.

we need to get rid of COBOL
and make microservices!”

“… but our release board
only meets twice a year.”

distributed monolith

distributed monolith

but without compile-time checking
... or guaranteed function execution

fail

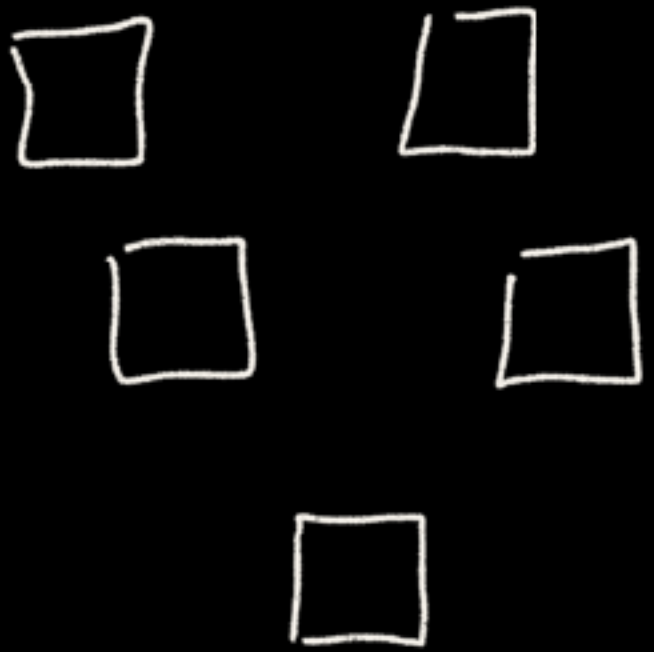
cloud-native spaghetti

“every time we change one microservice, another breaks”

distributed != decoupled

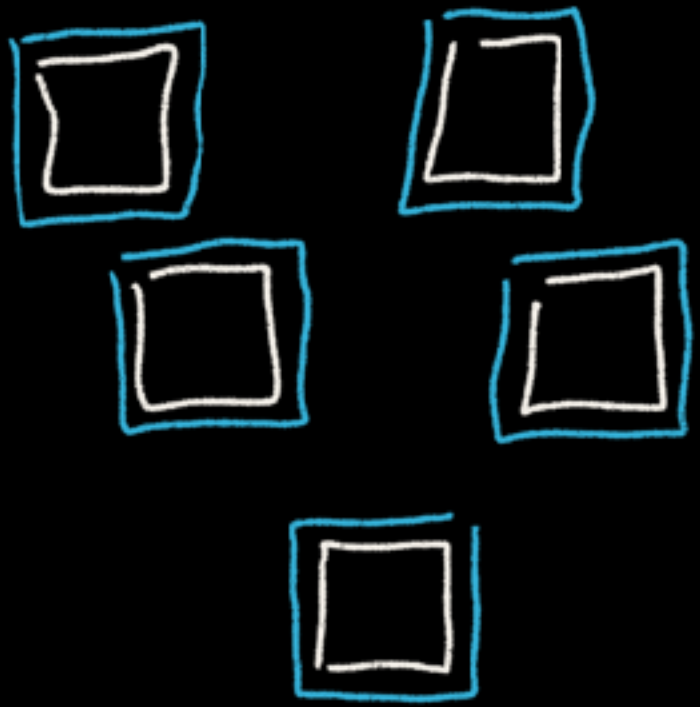
“each of our microservices has duplicated the same object model … with twenty classes and seventy fields”

Microservice



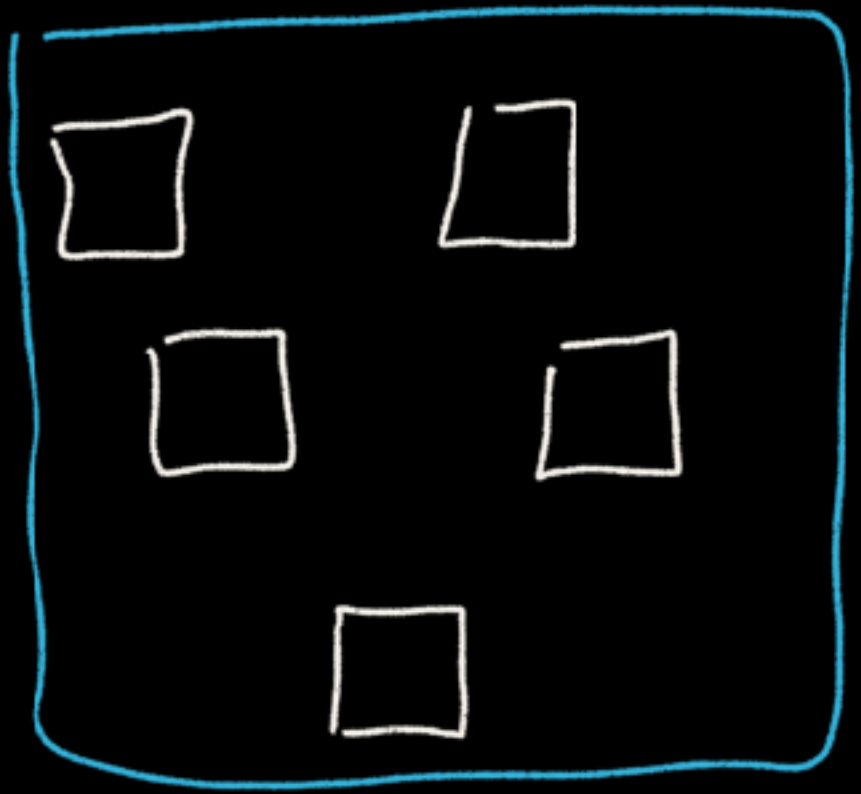
Microservice

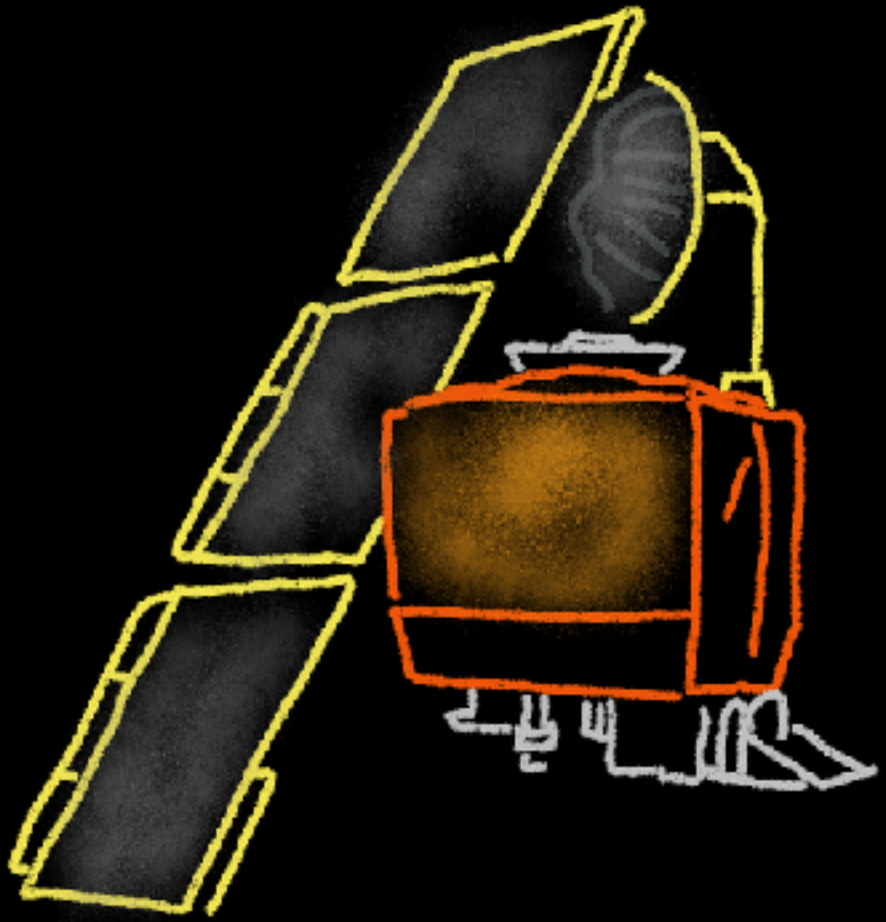
Domain

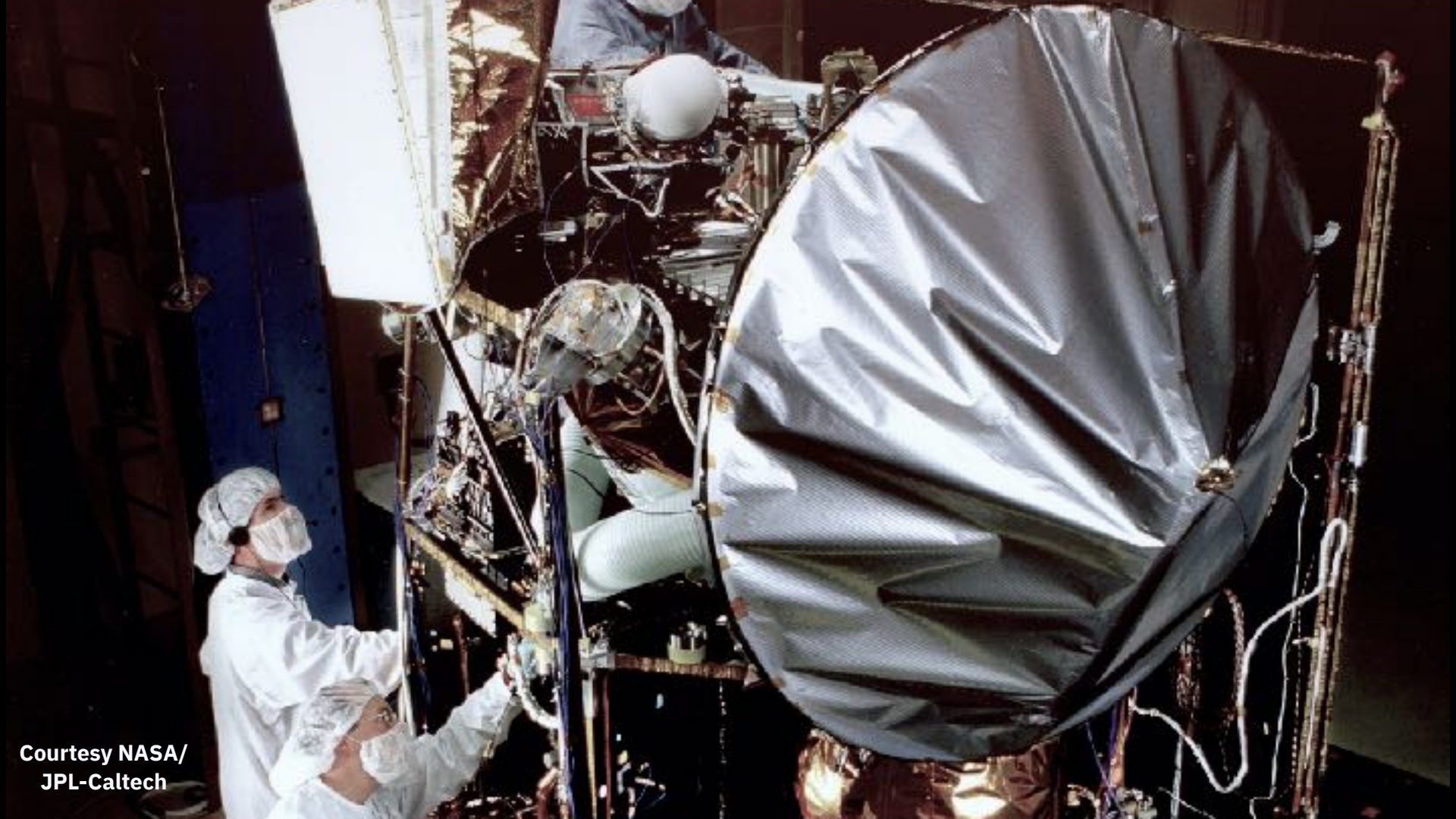


Microservice

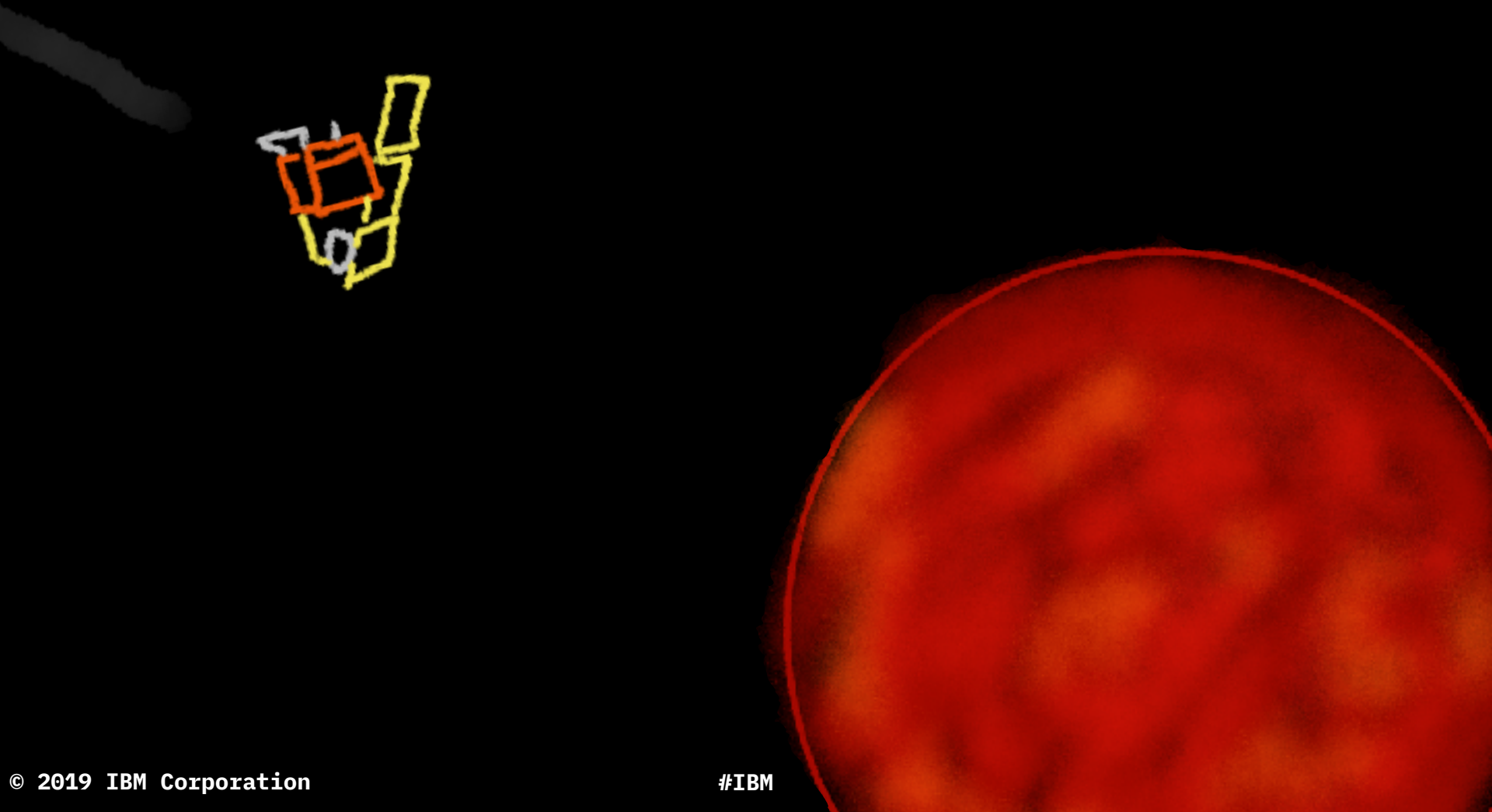
Domain

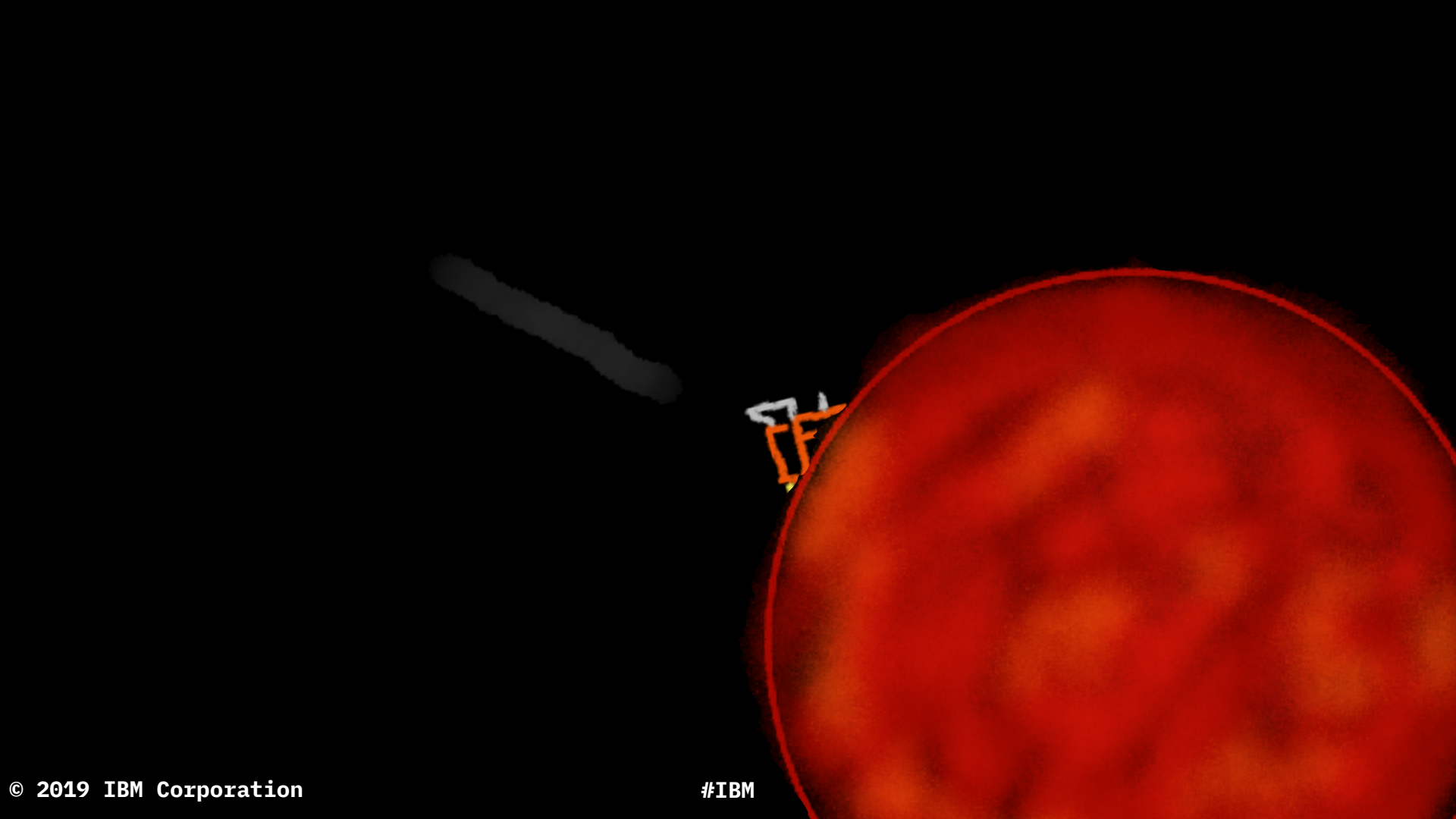


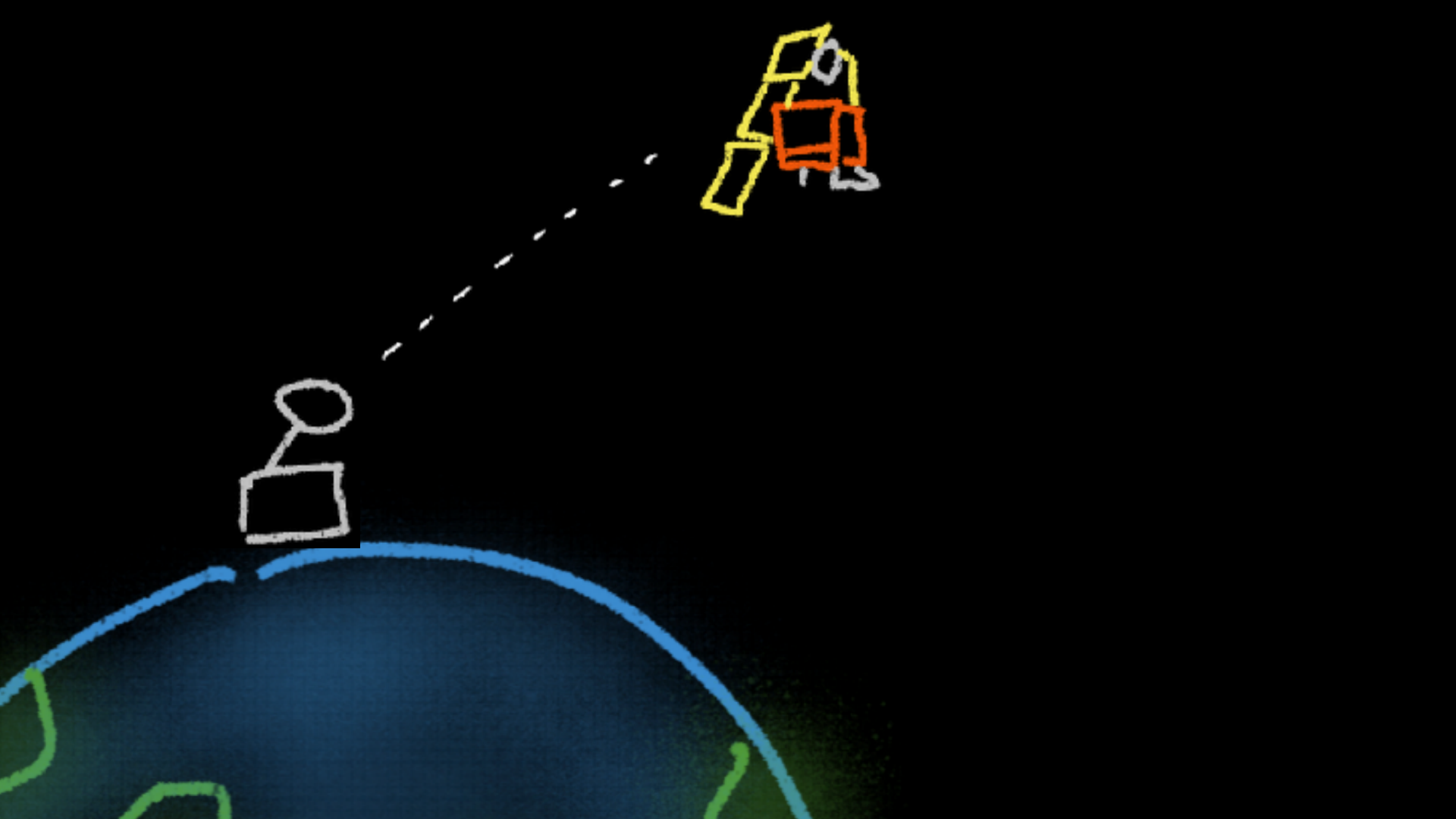


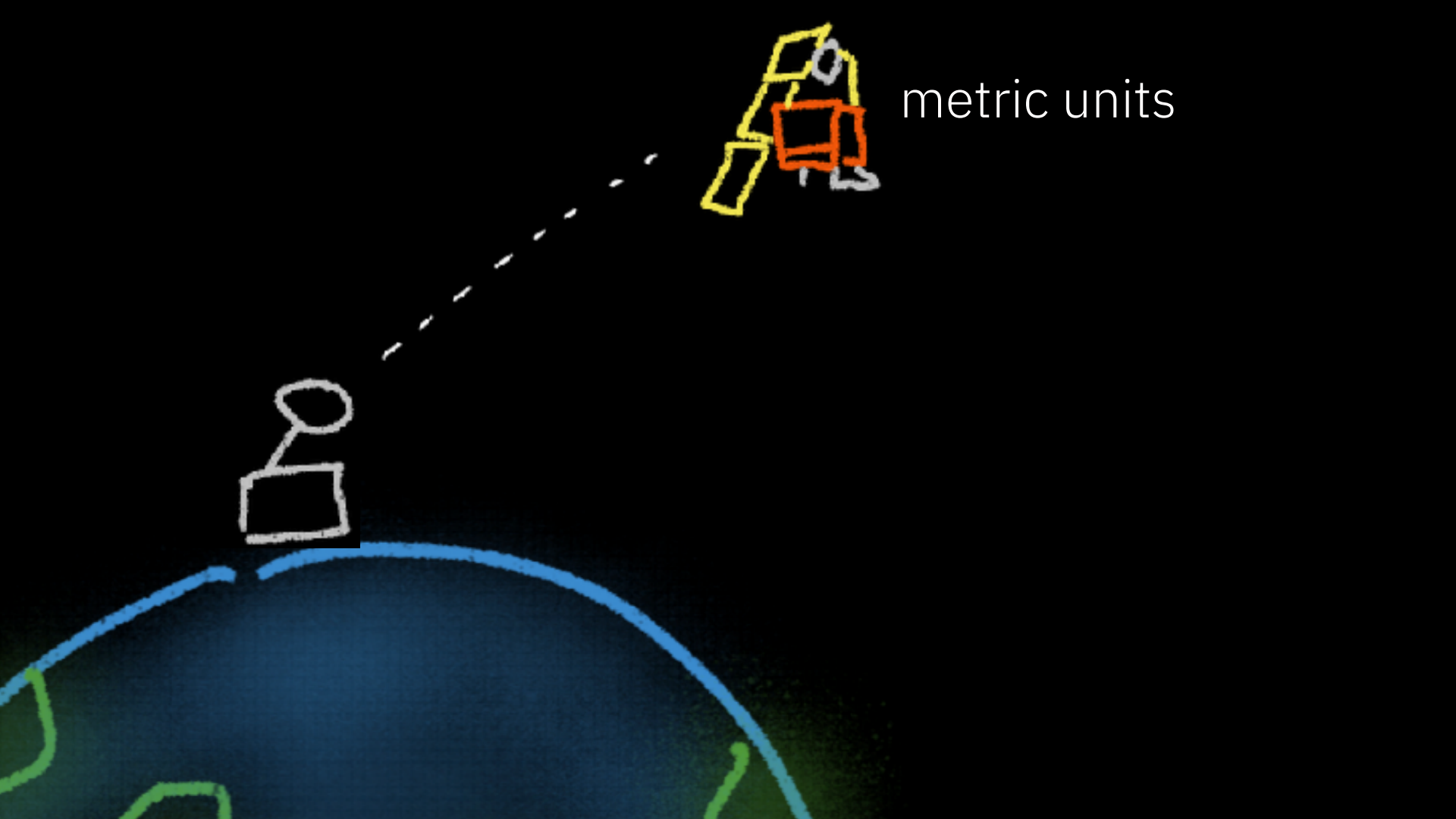


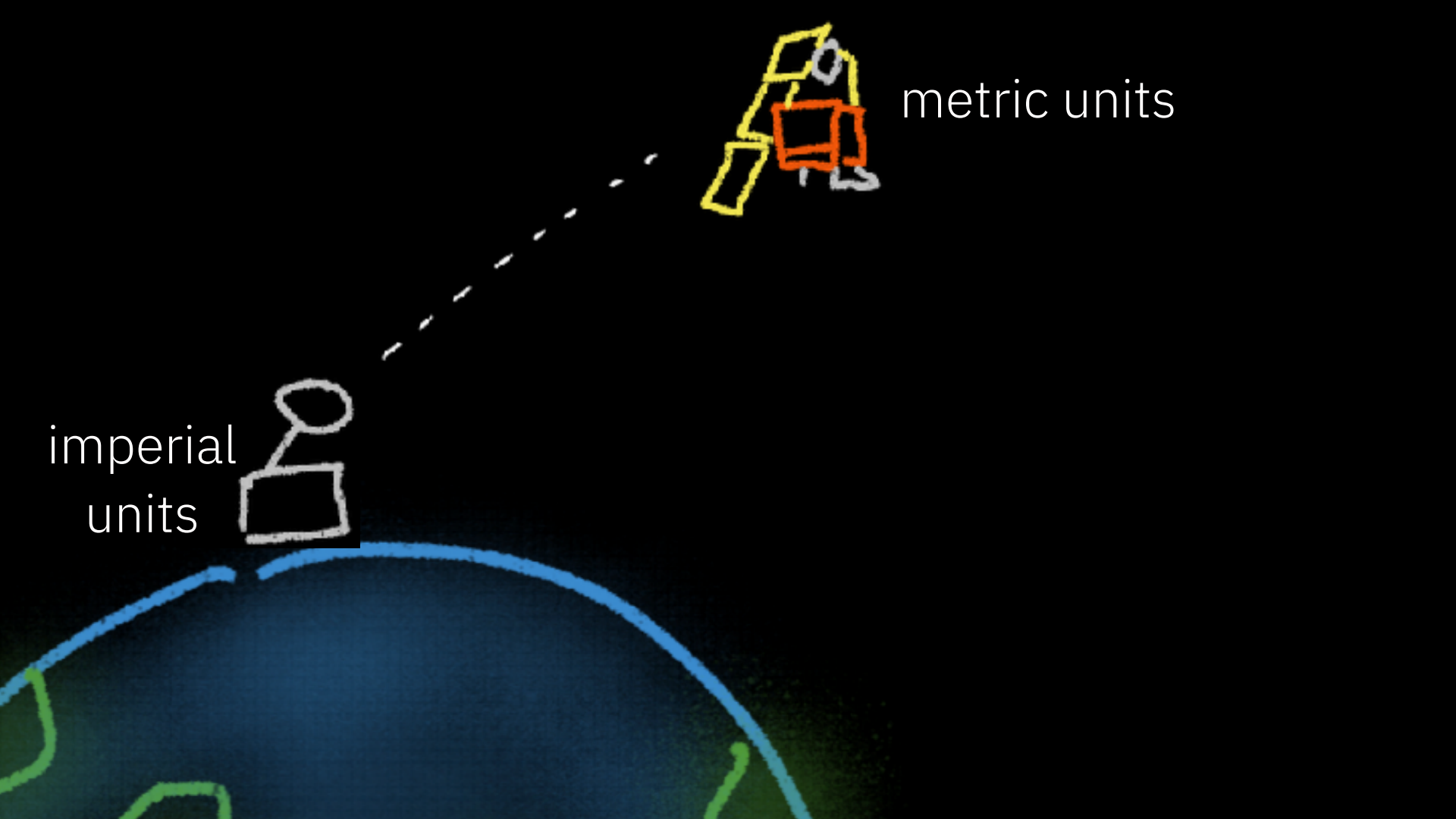
Courtesy NASA/
JPL-Caltech








metric units


metric units
imperial
units


metric units
imperial units
distributing did not help

microservices **need**
consumer-driven contract tests

microservices need

automated

consumer-driven contract tests

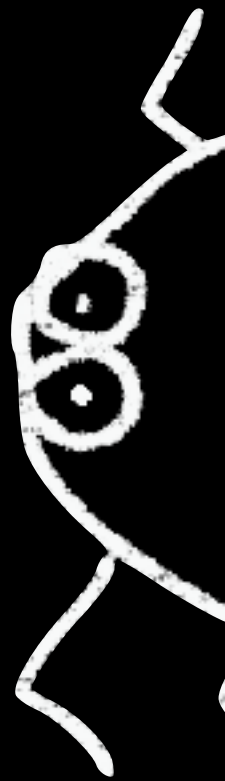
fail

the ‘someday’ automation

“our tests aren’t automated”

“we don’t know if our code works”

“we don’t know if our code works”



fail

the not-actually-
continuous
continuous
integration and
continuous
deployment

“we have a CI/CD”

CI/CD is something you **do**
not a tool you buy

“i’ll merge my branch
into our CI next week”

“CI/CD … CI/CD … CI/CD …

we release every six months …

CI/CD …. ”

continuous.

I do not think that word means what you think it means.

“we can’t actually **release** this.”


why?

what’s stopping more frequent deploys?

“we can’t release this microservice...

we deploy all our microservices at the same time.”

what’s the point of architecture that can go faster, if you don’t go faster?

drive a car

feedback is good engineering

feedback is good business

deferred wiring

feature flags

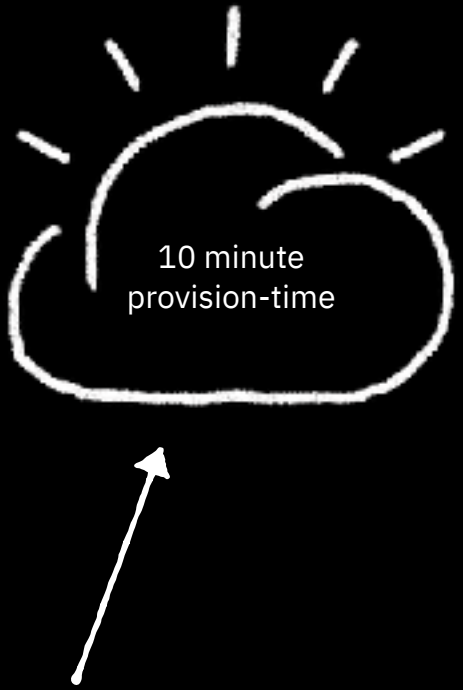
A/B testing

canary deploys

fail

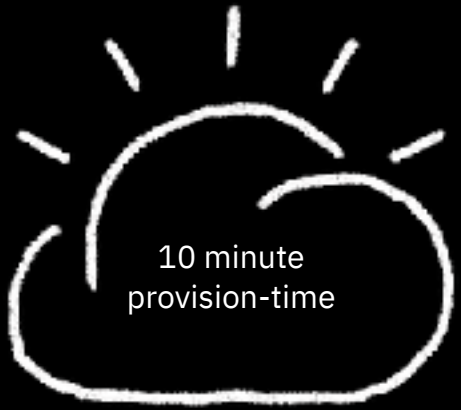
the locked-
down totally
rigid inflexible
un-cloudy cloud

“this provisioning software is broken”

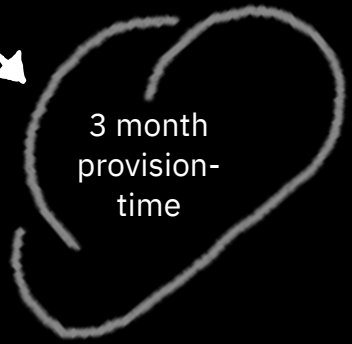


what we sold

“this provisioning software is broken”

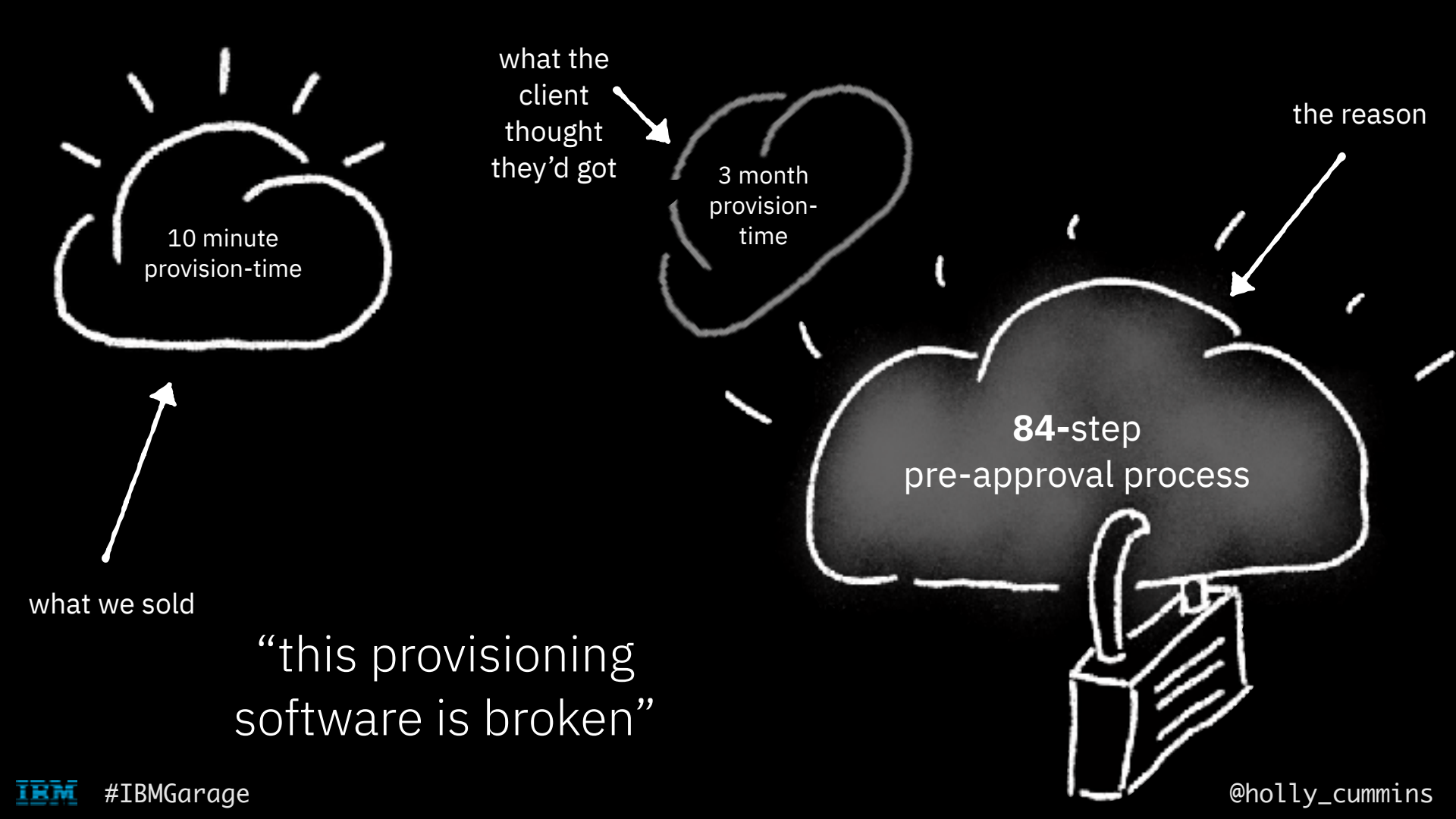


what the client thought they'd got

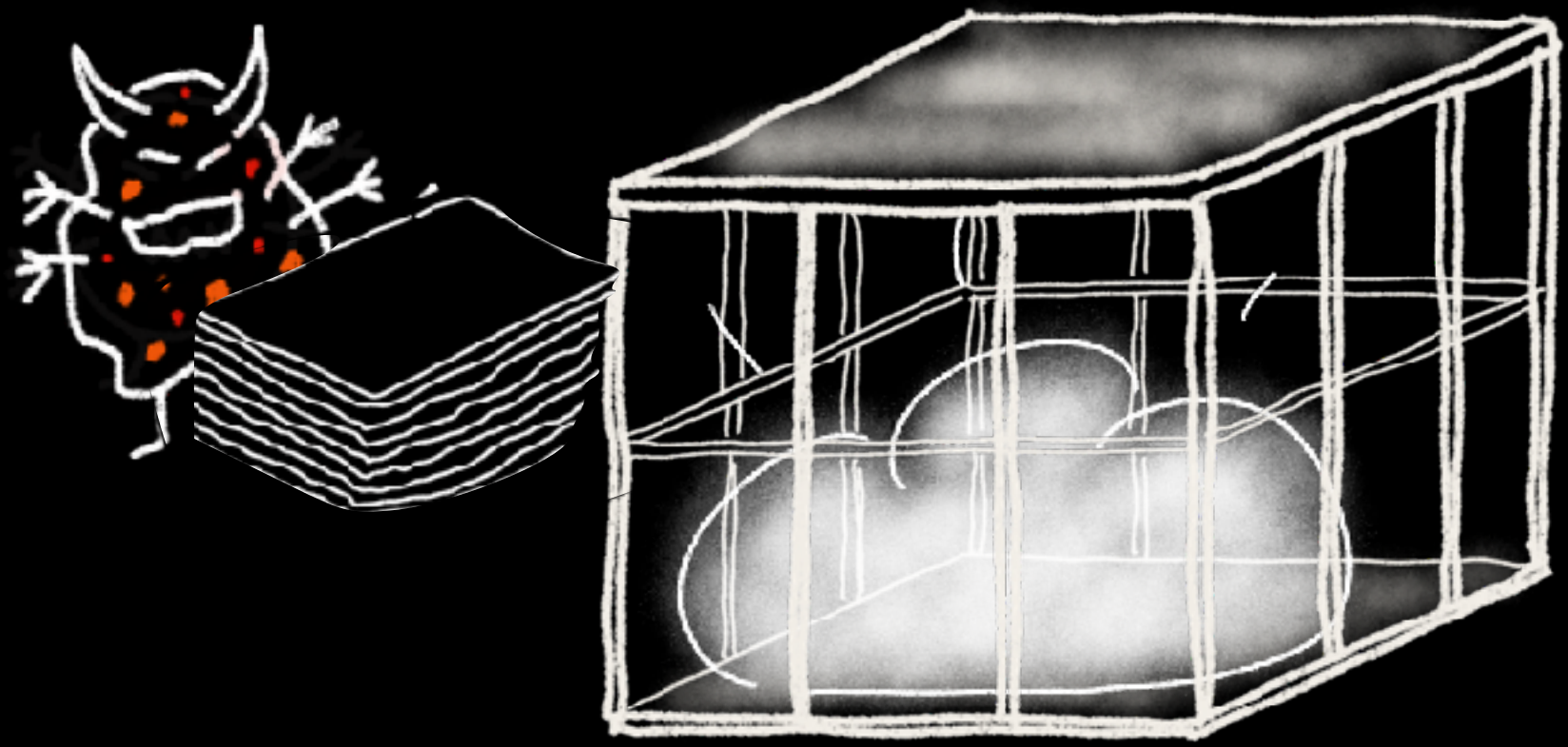


what we sold

"this provisioning software is broken"



"this provisioning
software is broken"



old-style governance isn’t going to work

FinOps

AIOps

ways to succeed at cloud native

cloud native architecture ...

cloud native architecture ...

and

cloud native architecture ...

and

cloud native operations

align business and IT

devops

optimise for feedback

be clear on what you're trying to achieve

collaborate with experts

co-creation is brilliant

@holly_cummins