

minikube

bringing k8s to the next billion users

shanghai 2019

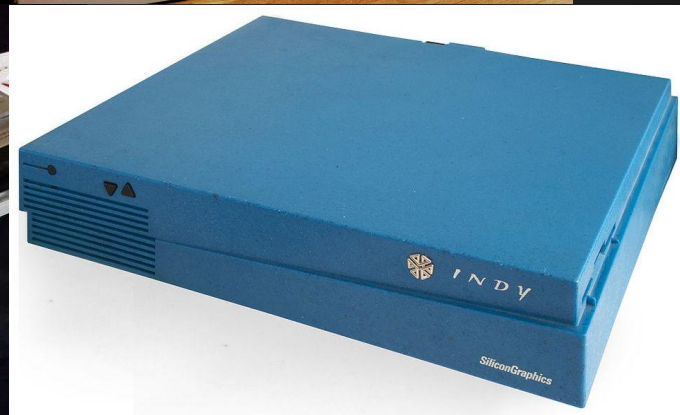
thomas strömberg (川托马斯) - @tstromberg



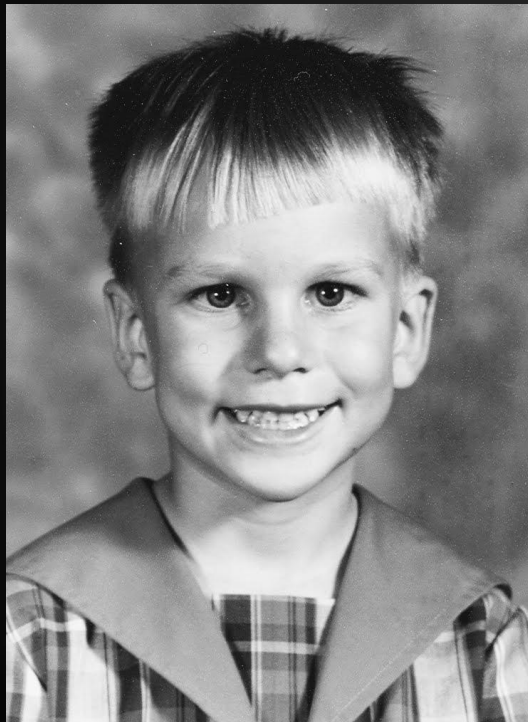
- Personal Context
- The role of a programmer
- Who are the next billion?
- Why do the next billion matter?
- What is minikube?
- How can we help the next billion?



历史

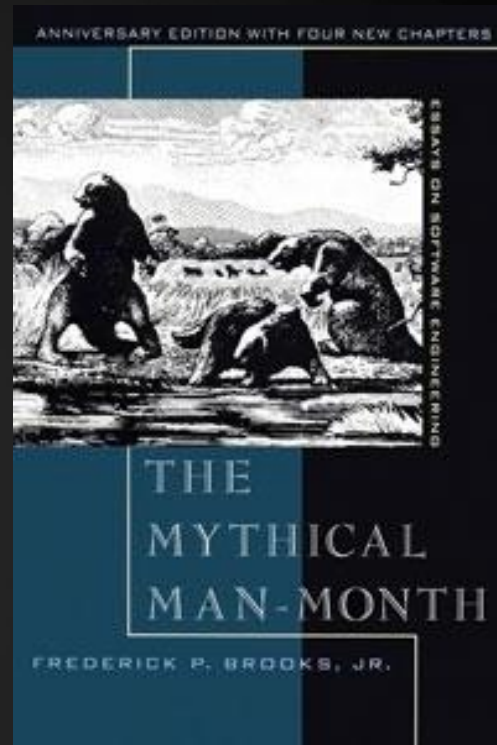


川托马斯?



“the programmer delivers
satisfaction of a user need
rather than any tangible
product.”

人月神话



successful software **adapts**
to the needs of users.

successful adaptation
requires **empathy**.



Tools to gather empathy:

- Surveys
- User journeys
- GitHub Issues

But what if like me,
users are **too embarrassed to speak?**



Next billion?

43% of the world

did not use the Internet last year

source: <https://www.internetworldstats.com/stats.htm>



The next billion users
do not speak English.



The next billion users do not
have Gigabit Ethernet...

but, the average speed is surprisingly good.

Source: https://en.wikipedia.org/wiki/List_of_countries_by_Internet_connection_speeds



The next billion users
are not Linux experts.



A substantial portion
of the next generation
will be **inspired** to
become
programmers



How do we adapt
Kubernetes to make it
applicable to the next
billion users?

Empathy and accessibility.



You should not have to learn
English to use the Internet

You should not have to **learn**
English to use Kubernetes

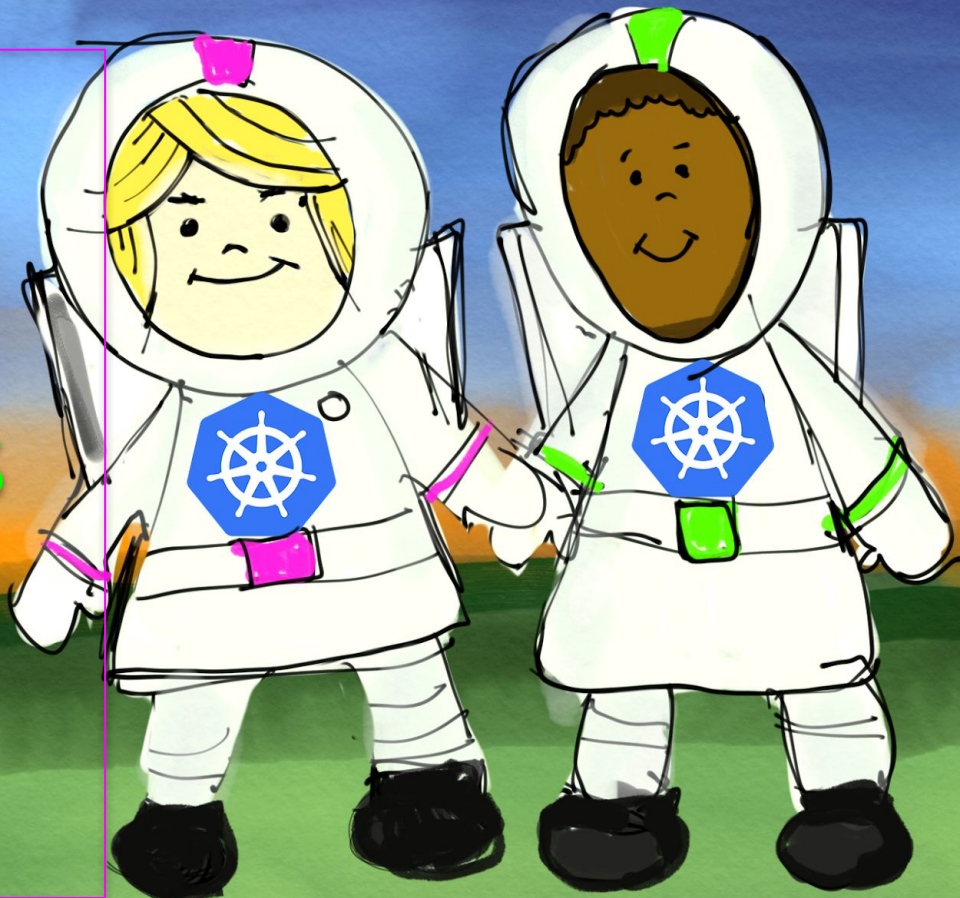


If we fail to make Kubernetes accessible globally, we will end up with **splintered** solutions for managing compute resources.

SGI IRIX, IBM AIX, HP-UX, DEC Ultrix, NeXTstep, Dell UNIX, Digital UNIX, DG/UX, DYNIX, Sun Solaris, Reliant UNIX, NCR Unix, Apple A/UX, Intergraph CLIX



Be
the
virtuous
cycle



MINIKUBE

K8S DEV PROGRAM

v1.2.0 - 2019-06-24
by sig-cluster-lifecycle

START

OPTIONS



30%

Of users install minikube to learn Kubernetes.



Demo

```
$ export LANG=zh_CN.UTF8
```

```
$ minikube start \
  --image-mirror-country=cn \
  --container-runtime=crio
```



Kubernetes features that fit

NodePorts

Ingress

LoadBalancer

DNS

Runtimes

**Persistent
Volumes**

ConfigMaps

Secrets

Dashboard

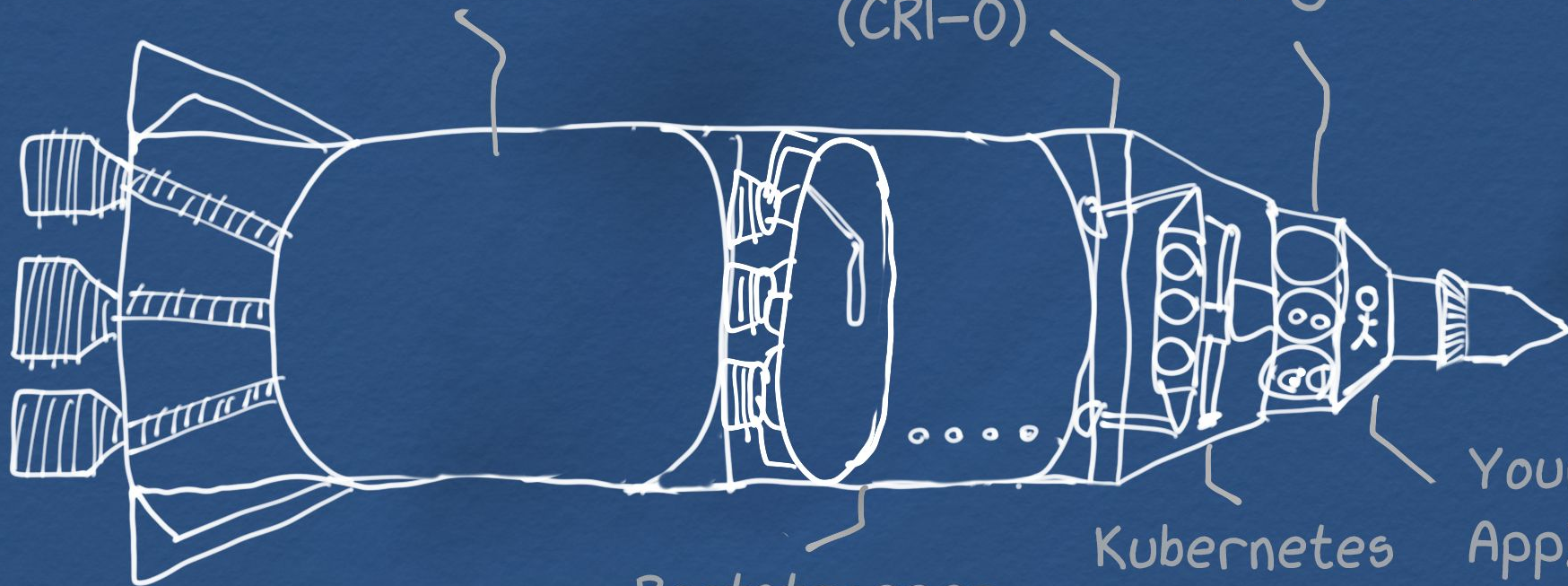
RBAC



Machine Driver
(virtualbox)

Container
Runtime
(CRI-O)

Addons
(Ingress)



minikube

Continuously Tested

Supported

May require work

Planned for 2019

k8s

1.15

1.14

1.13

1.12

1.11

1.10

runtime

Docker

CRI-O

containerd

gvisor

kata

bootstrapper

kubeadm

kinder

VM driver

VirtualBox

KVM

HyperKit

HyperV

vmware

VM-free driver

none

Docker

Podman

OS

Linux

MacOS

Windows

FreeBSD

Architecture

amd64

arm64

s390x



Causes of Friction

As with all things human, most software friction is due to a series of **simple misunderstandings**.





Meet users where they are.

- Language
- Environment
- Documentation
- Skill Level



Work in Progress

把招工广告



Language

- Localized command-lines
- Localized documentation
- Localized feedback
- We need help!



```
func inspectFile(e *state) error {
    fset := token.NewFileSet()
    r, err := ioutil.ReadFile(e.filename)
    if err != nil {
        return err
    }
    file, err := parser.ParseFile(fset, "", r, parser.ParseComments)
    if err != nil {
        return err
    }

    ast.Inspect(file, func(x ast.Node) bool {
        if fi, ok := x.(*ast.File); ok {
            e.currentPackage = fi.Name.String()
            return true
        }

        if fd, ok := x.(*ast.FuncDecl); ok {
            setParentFunc(e, fd.Name.String())
        }
    })
}
```



minikube ▸ translate ▸ translations ▸ {} fr-FR.json ▸ ...

{

"Configuring environment for Kubernetes %s on %s %s": "Configurant l'environnement pour Kubernetes %s sur %s (%s)",
"Creating %s VM (CPUs=%d, Memory=%dMB, Disk=%dMB) ...": "Créant un VM %s (%s) avec %d CPU(s), %d Mo de mémoire et %d Go de disque ...",
"Done! kubectl is now configured to use %q": "Fini! kubectl est maintenant configuré pour utiliser %q",
"Launching Kubernetes ... ": "Lançant Kubernetes ...",
"Pulling images ...": "Extrayant les images ...",
"Waiting for SSH access ...": "Attendant l'accès SSH ...",
"minikube %s on %s (%s)": "minikube %s sur %s (%s)"

}



Networking Environment

- Offline mode: `~/.minikube/cache`
- `--image-mirror-country`
 - Automate?
- Need to move release ISO to GitHub
- Improved proxy support



System Environment

- **Windows** as a first-class OS
 - A much higher market share outside of the US
- **HyperV & WSL2** as first-class solutions



System Environment

- VM-free
 - Improving on the “none” driver
 - Deploy to Docker or Podman
 - Goal: Kubernetes in 15 seconds
 - Prototyping using **kind**



Documentation

- Documentation drives adoption
- Hugo-based doc site coming soon
- Help wanted
 - Translators
 - Tech Writers for PR review

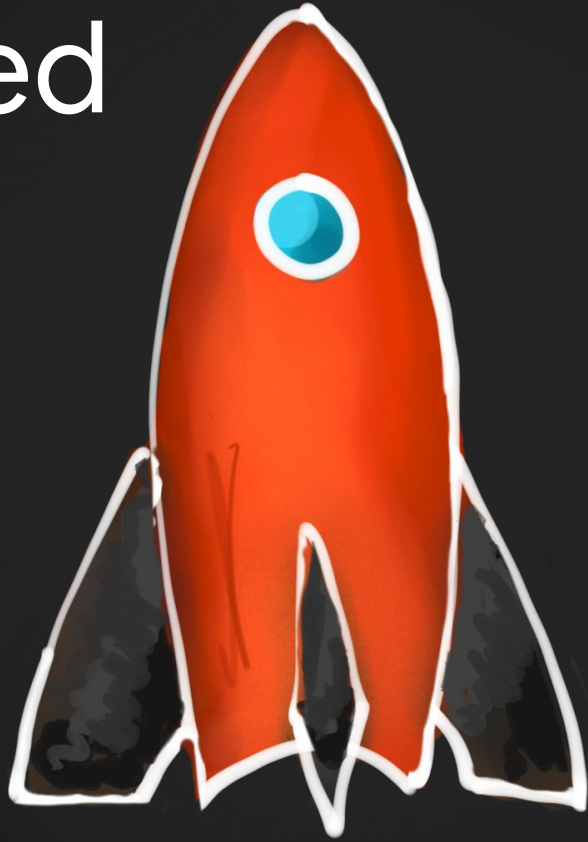


Skill Level

- Actionable errors
 - Point users to docs or issues
- Single-step install
 - Less involvement = less toil
- No flags required



Unsolicited Advice



Users!

- Overcome your embarrassment
- Badly translated inputs are better than no inputs
- Project owners have it in their best interest to have your help



Projects!

- The project with the most inclusive community wins
- Onboarding is as important as coding
- Gather Empathy: Surveys, Journeys
- Ignore the next billion at your peril



Come join us!

- github.com/kubernetes/minikube
- Slack: [**#minikube**](#)
- Survey: <http://bit.ly/minik-survey>*
- WeChat: [**thomstrom**](#)
- Twitter: [**tstomberg**](#)
- Non-English speakers welcome!



欢迎提问

