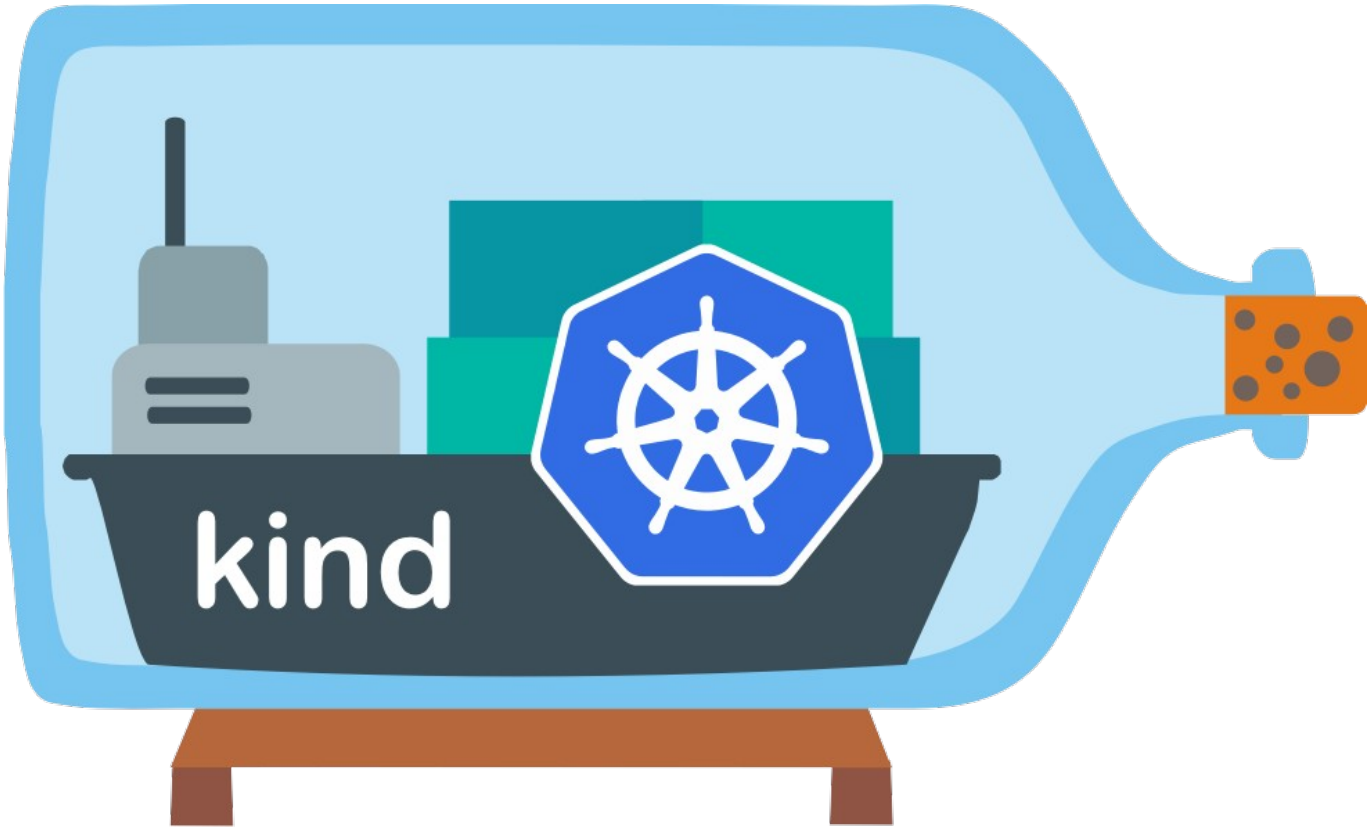
How we benefits from KIND (kubernetes in docker)



What is kind ?

https://github.com/kubernetes-sigs/kind

Kubernetes in docker

Why kind?

Kind is lightweight.

Run test locally and remotely (GitHub) fast and easy.

It is used upstream, we contributed already there.

Kind Part 01:

* Kind ecosystems and operators

1) The general idea about how kind fit in our existing context

2) Kind with kubernetes operators.

OUR DESIGN GOALS:

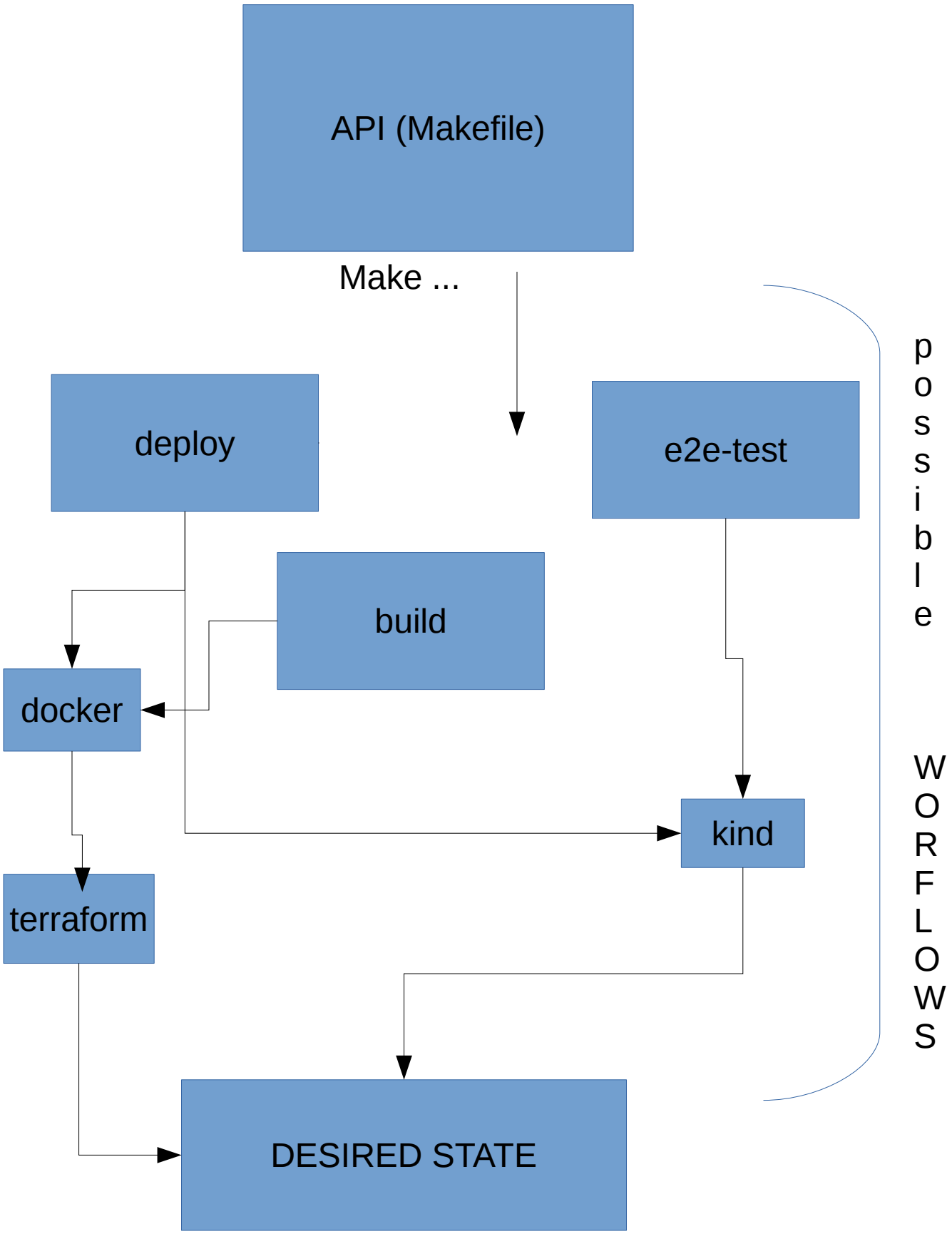
1) REMOTE = LOCAL execution

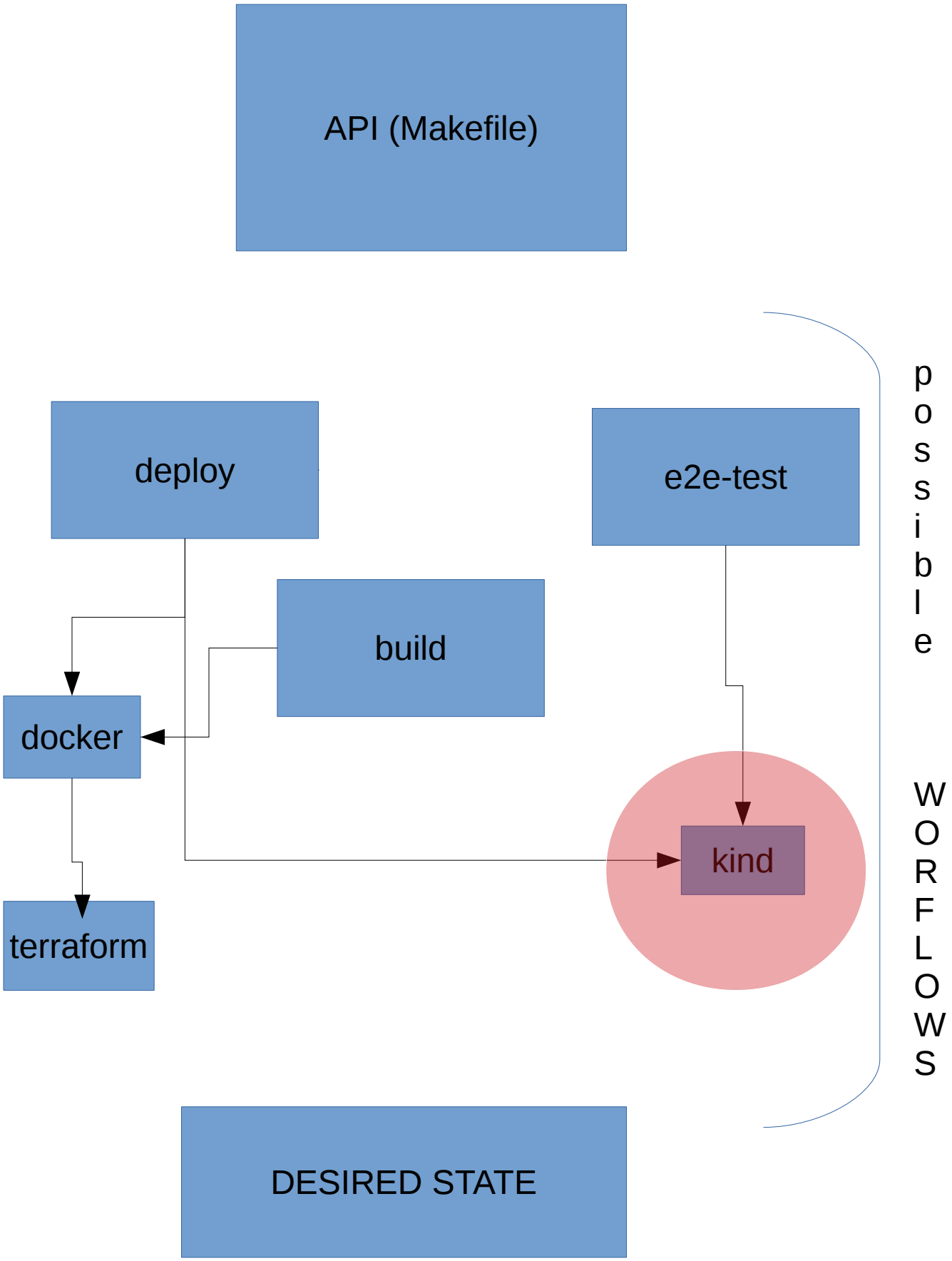
2) Frameworkless as possible

3) easy to execute, change and maintain. (API allow transparency)

4) Beeing composable of small units (UNIX principle)

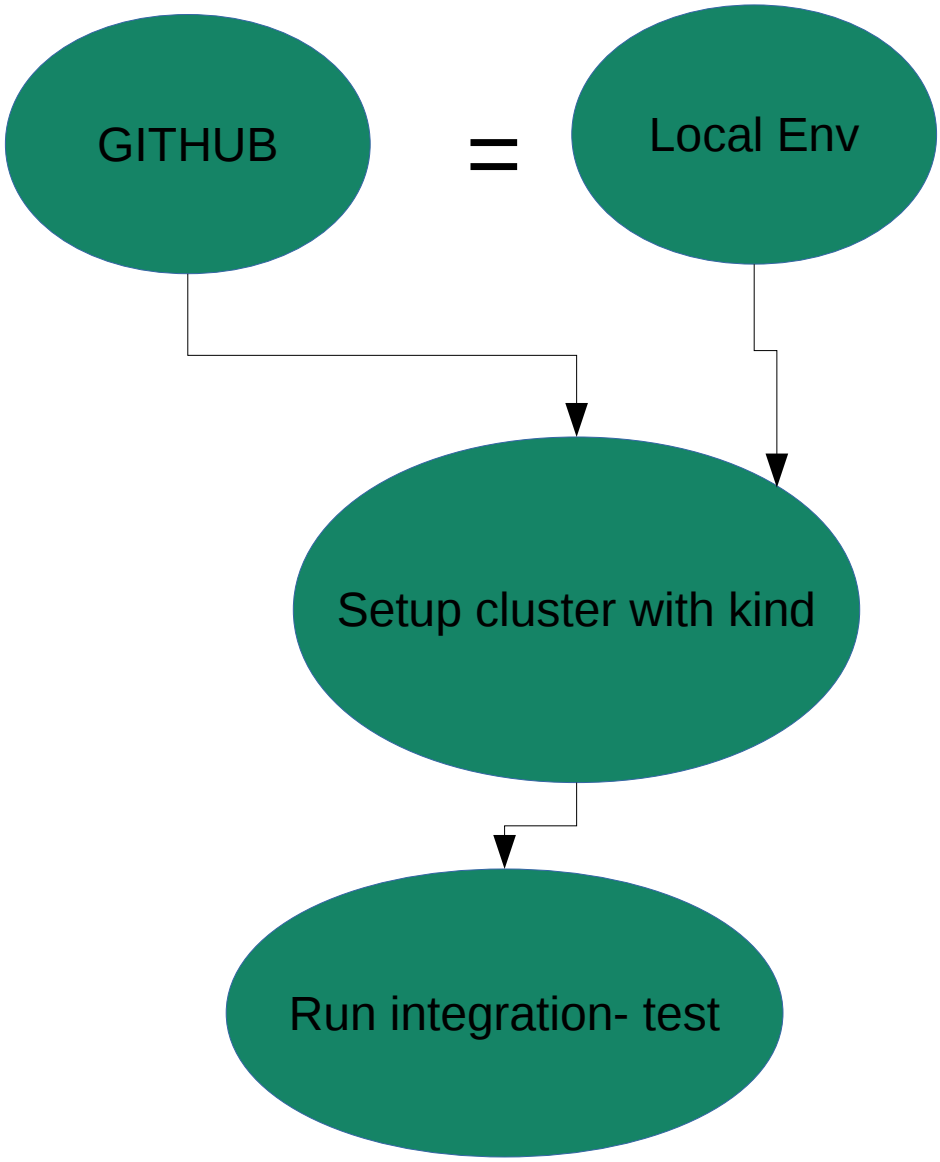
API DEEP-DIVE




API (Makefile)
deploy
e2e-test
build
docker
kind
terraform
DESIRED STATE
possible WORFLOWS

KIND with kubernetes operators.

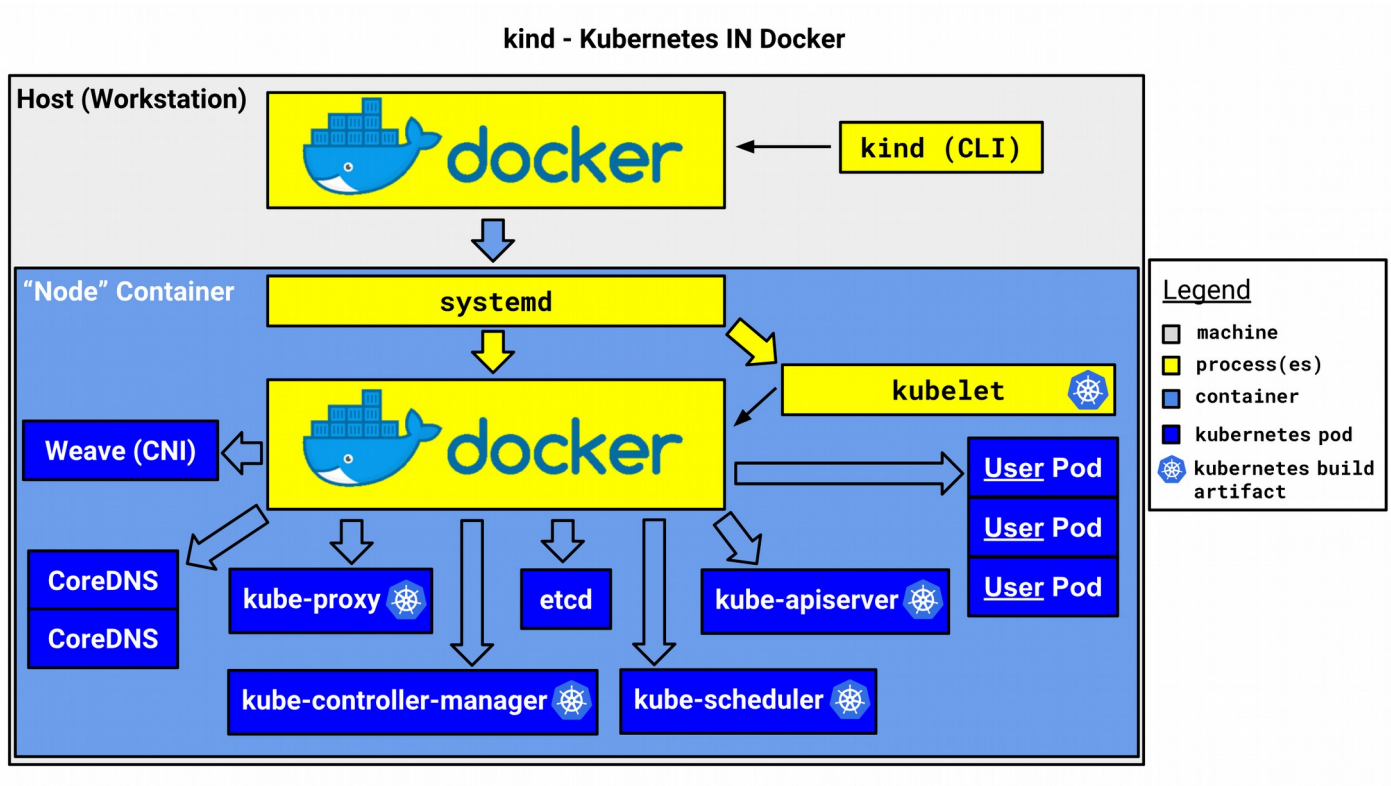
(Kubernetes operator pattern extend K8s cluster with custom functionality)



GOAL: validate operators against a cluster before merging Prs.

https://github.com/kubernetes-sigs/kind/blob/master/docs/design/design.md

KIND CURRENT DESIGN



Real EXAMPLES from our GITHUB:

```
441 $ go env                                                                    go.env
468 Using Go 1.5 Vendoring, not checking for Godeps
469 Makefile detected                                                          install
470 $ curl -Lo kubectl https://storage.googleapis.com/kubernetes-release/release/v1.12.0/bin/linux/amd64   before_script.1  0.35s
471 $ make kind-install KIND_VERSION="0.0.1"                                    before_script.2  1.73s
477 $ make kind-create-cluster                                                  before_script.3  95.65s
478 kind create cluster
479 Creating cluster 'kind-1' ...
480  ✓ Ensuring node image (kindest/node:v1.12.2) 🖼
481  ✓ [kind-1-control-plane] Creating node container 📦
482  ✓ [kind-1-control-plane] Fixing mounts 🗻
483  ✓ [kind-1-control-plane] Starting systemd 🖥
484  ✓ [kind-1-control-plane] Waiting for docker to be ready 🐋
485  ✓ [kind-1-control-plane] Starting Kubernetes (this may take a minute) ☸
486 Cluster creation complete. You can now use the cluster with:
487
488 export KUBECONFIG="$(kind get kubeconfig-path)"
489 kubectl cluster-info
490 $ make kind-e2e-tests                                                                  113.16s
491 make e2e-tests KUBECONFIG=/home/travis/.kube/kind-config-1
492 make[1]: Entering directory `/home/travis/gopath/src/github.com/kubic-project/registries-operator'
493 sh ./tests/e2e-tests.sh
494 KUBECONFIG variable point to :
495 /home/travis/.kube/kind-config-1
496
497  -- cluster info --
498 Kubernetes master is running at https://localhost:35184
499 KubeDNS is running at https://localhost:35184/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy
500
501 To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
502
503 make[2]: Entering directory `/home/travis/gopath/src/github.com/kubic-project/registries-operator'
504 >>> Building cmd/registries-operator/registries-operator...
505 GO111MODULE=on GO15VENDOREXPERIMENT=1 go build -ldflags "-X=main.Version=1.0.0 -X=main.Build=`git rev-parse HEAD 2>/dev/null`" -o
    cmd/registries-operator/registries-operator cmd/registries-operator/main.go
```

```
520 go: downloading golang.org/x/text v0.3.0
521 go: downloading golang.org/x/sys v0.0.0-20181005133103-4497e2df6f9e
522 go: downloading k8s.io/utils v0.0.0-20180918230422-cd34563cd63c
523 go: downloading github.com/ugorji/go v1.1.1
524 >>> Using /home/travis/.kube/kind-config-1...
525 >>> Loading stuff with kubectl apply
526 serviceaccount/regs-jobs created
527 serviceaccount/regs-controller created
528 customresourcedefinition.apiextensions.k8s.io/registries.kubic.opensuse.org created
529 >>> Running cmd/registries-operator/registries-operator
530 cmd/registries-operator/registries-operator manager \
531                 -v 5 \
532                 --kubeconfig /home/travis/.kube/kind-config-1 \
533                  &
534 make[2]: Leaving directory `/home/travis/gopath/src/github.com/kubic-project/registries-operator'
535 make[1]: Leaving directory `/home/travis/gopath/src/github.com/kubic-project/registries-operator'
536 The command "make kind-e2e-tests" exited with 0.
537
538
539
540 Done. Your build exited with 0.
                                                                                Top ▲
```

Makefile?

LINDY EFFECT
https://en.wikipedia.org/wiki/Lindy_effect

The Lindy effect is a concept that the future life expectancy of some non-perishable things like a technology or an idea is proportional to their current age, so that every additional period of survival implies a longer remaining life expectancy.