Rolling out and managing Kubernetes

Production grade Kubernetes

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ubuntu

CANONICAL

What is Kubernetes?

An orchestration platform for application containers

At its core, the Kubernetes scheduler does

```
while True:
    delta = diff(desired_state, current_state)
    schedule(delta)
```

For more information:

http://kubernetes.io/v1.1/docs/whatisk8s.html

Kubernetes is difficult to install

not impossible just complex

There are **several** ways to install Kubernetes

death by too much information

- Local-machine Solutions
- A Hosted Solution (GCE only)
- 3 "Turn-key" cloud solutions
  - GCE: `curl -sS` https://get.k8s.io `| bash`
  - AWS: `curl -sS` https://get.k8s.io `| bash`
  - Azure: Requires Node.js: `npm install` and Azure log in scripts.
- Many **custom** solutions available for Rackspace, Joyent, Vagrant and VMware.
- Bare Metal
- Kubernetes on Apache Mesos

curling a file and piping to bash

is not production grade software installation!

No operations team will let you curl to bash

our team would certainly not let us do that.

The right way to do it would be to build Kubernetes yourself

and deploy those binary files to the cluster

Modelling with Juju addresses these concerns

Charming Kubernetes

making k8s solution production grade

The kubernetes charm
is built with several layers

includes: ['layer:docker', 'layer:flannel', 'layer:tls', 'interface:etcd']

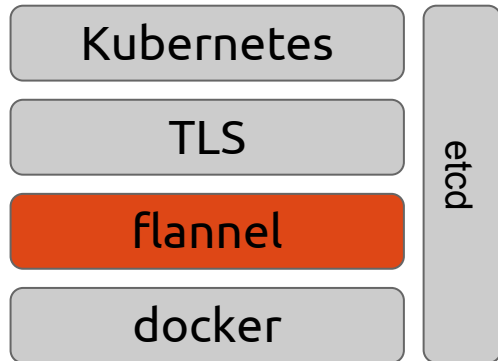includes: ['layer:docker', 'layer:flannel', 'layer:tls', 'interface:etcd']

Your Deltas

Kubernetes

layer:tls

layer:flannel

layer:docker

interface:etcd

Kubernetes

TLS
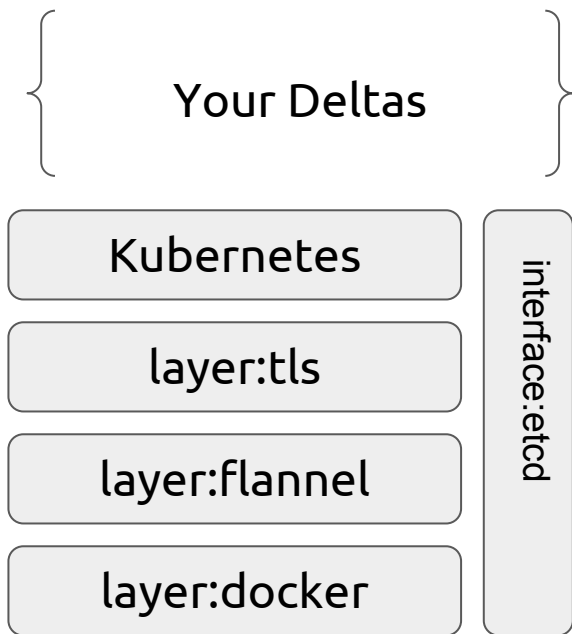
flannel

docker

etcd

the docker layer

makes it easier to work with docker containers

Kubernetes

TLS

flannel

docker

etcd

the flannel layer

gives the containers a software defined network

Kubernetes	
TLS	etcd
flannel	
docker	

the tls-layer

makes a **strong** case for layers

Kubernetes

TLS

flannel

docker

etcd

the etcd interface layer

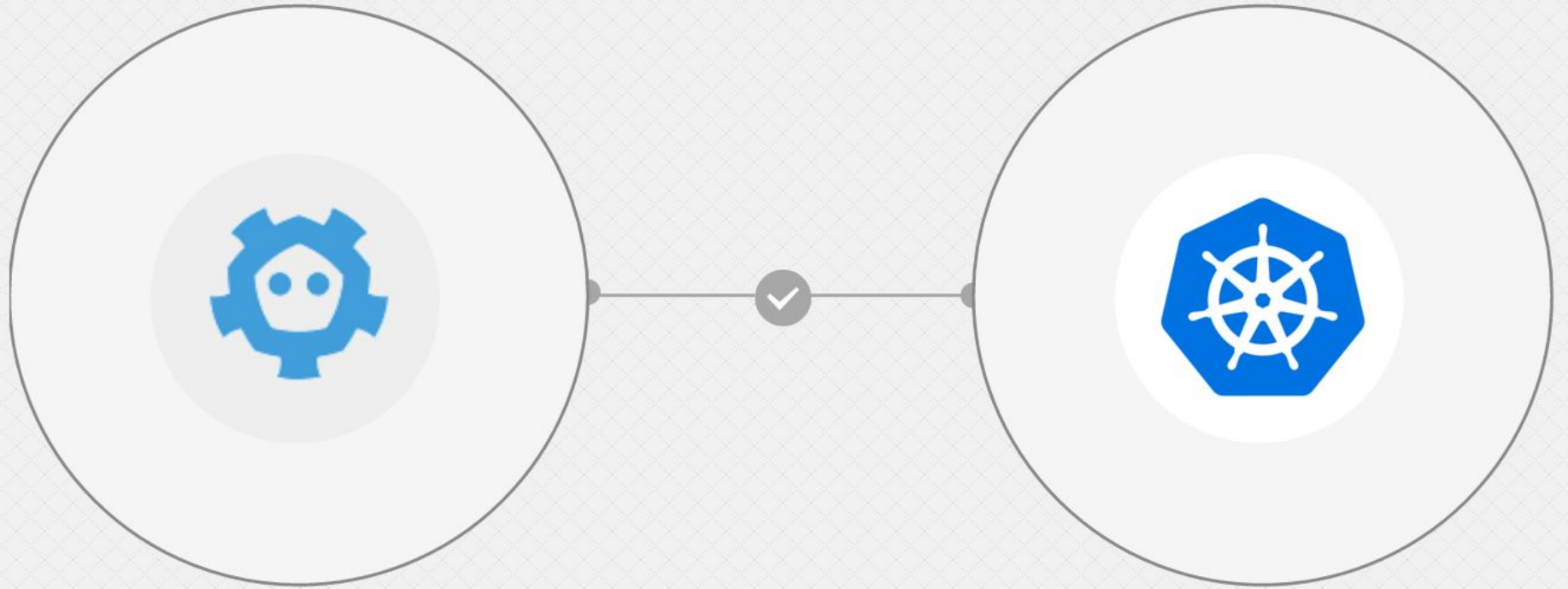Allows the charm to connect with an etcd cluster

Kubernetes

TLS

flannel

docker

etcd

the kubernetes-layer

connecting all components to build Kubernetes

Kubernetes cluster

Show me the money!

github.com/mbruzek/k8s-layer
interfaces.juju.solutions
jujucharms.com/get-started

Thanks!

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https://jujucharms.com/get-started