

# Application Deployment

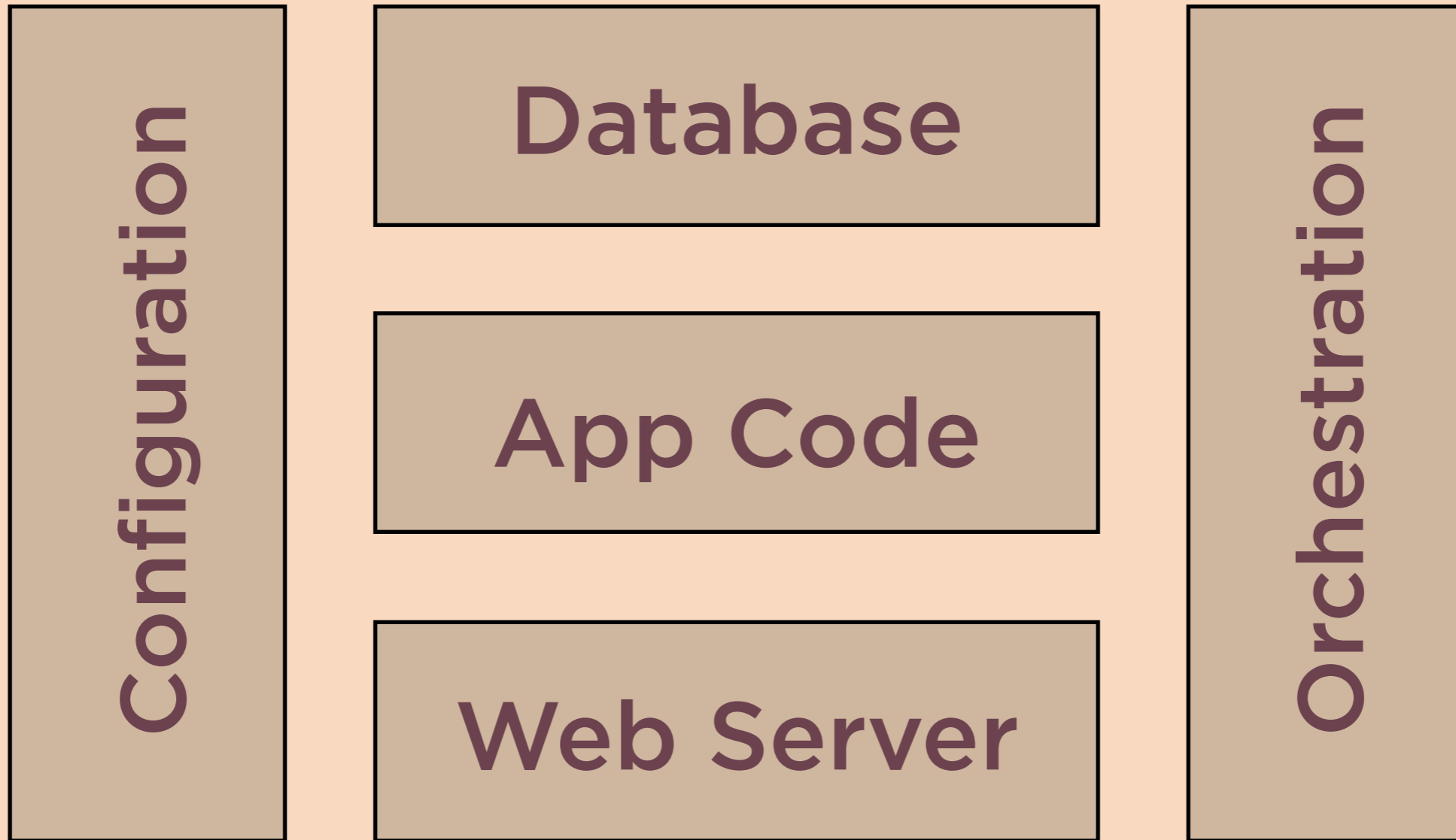
## State of the Onion

Noah Kantrowitz

# Me

- PSF + PyCon
- Balanced
- Chef
- Making things

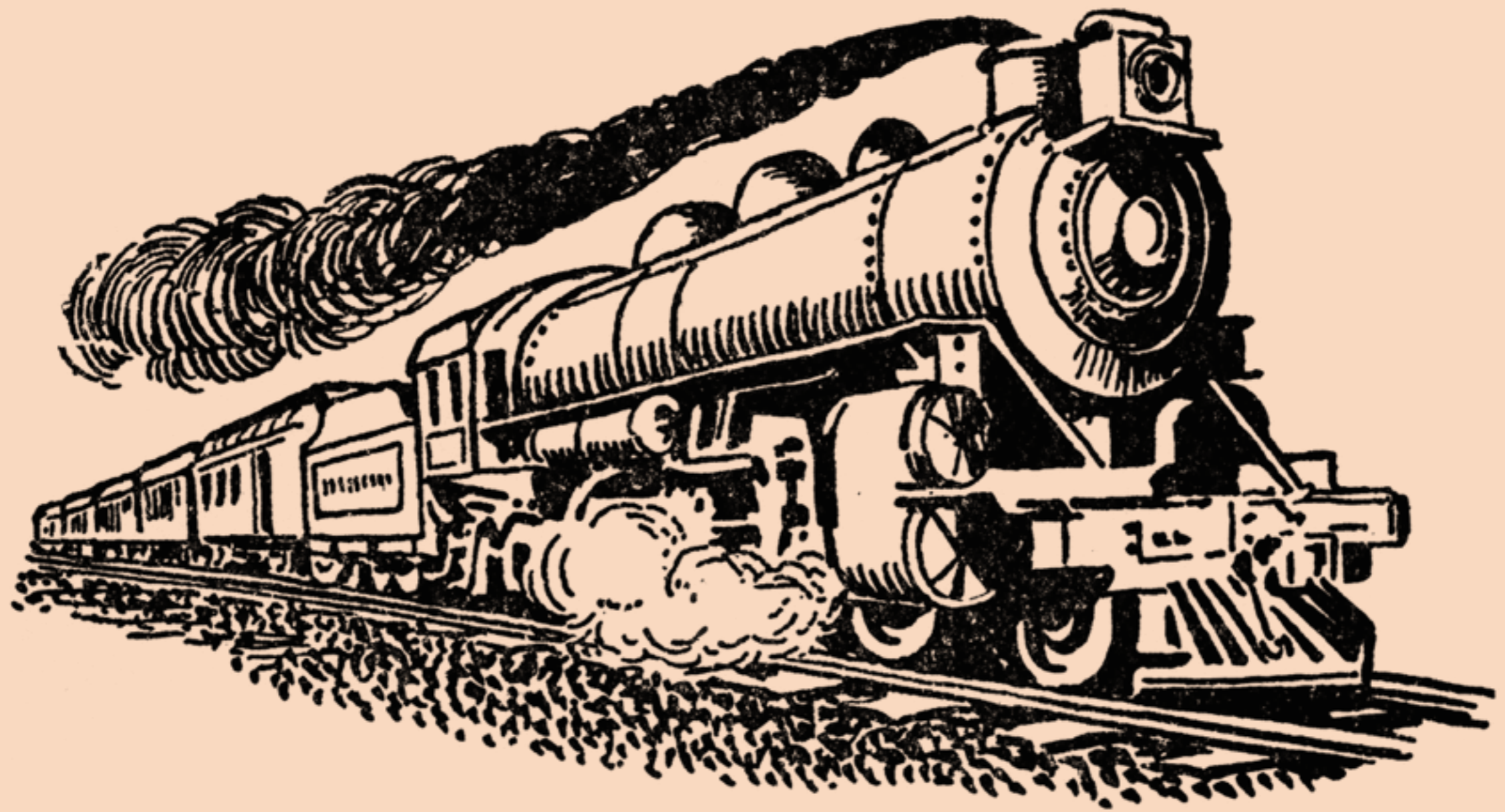
# Platform

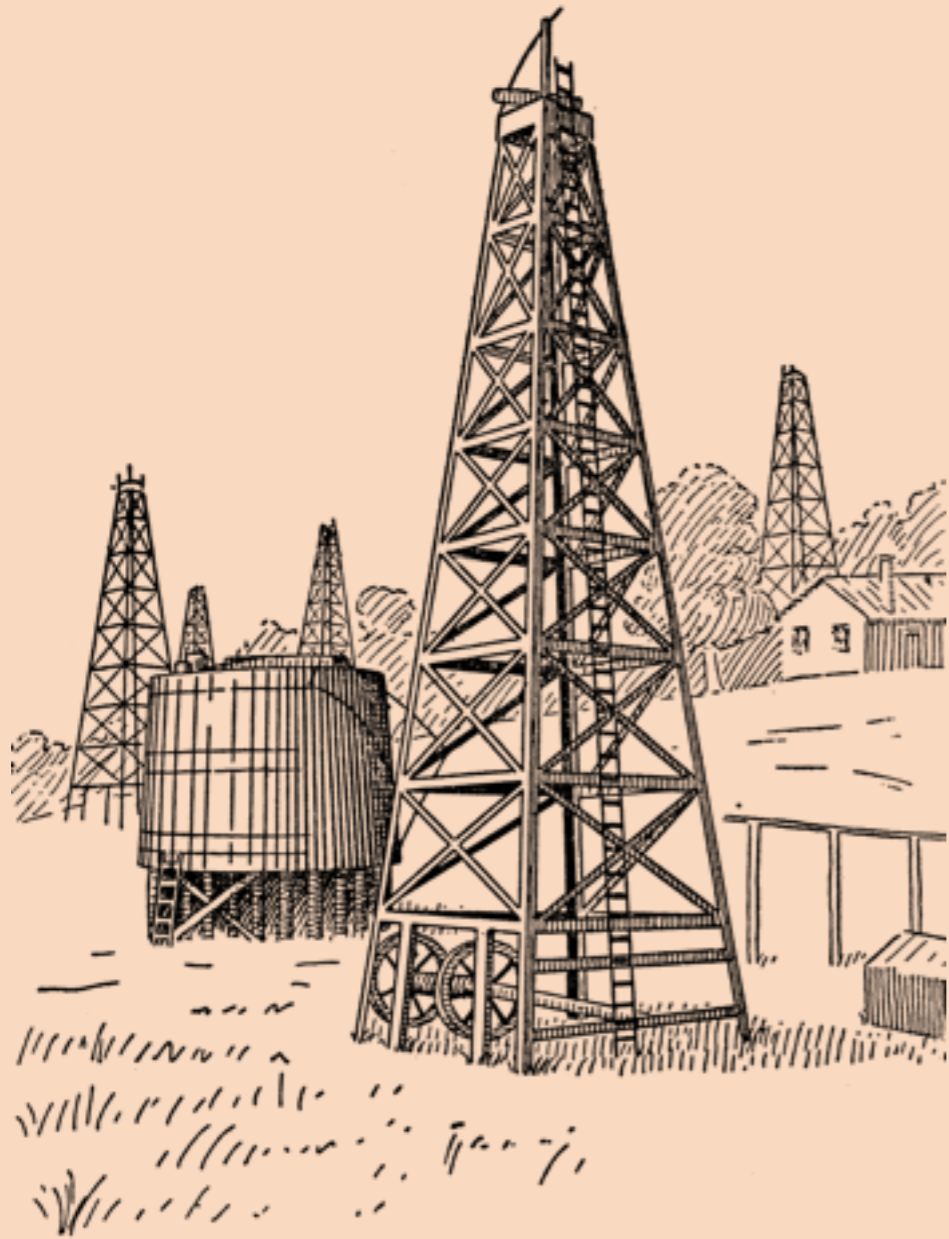




RICHARDSON, SC.

# Application Code





# Tar

- Simple
- Everywhere
- Repetitive

# **RSYNC**

# **Rsync**

- **Efficient**
- **Everywhere**
- **Many options**



# Git



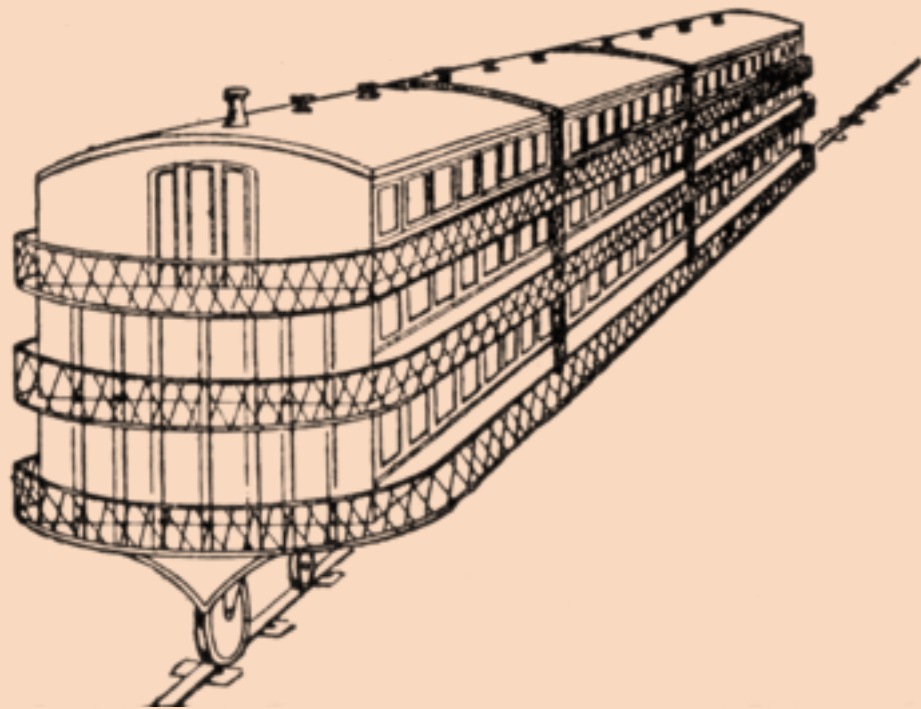
- Common SCM
- Push or pull
- Single truth

# Packages



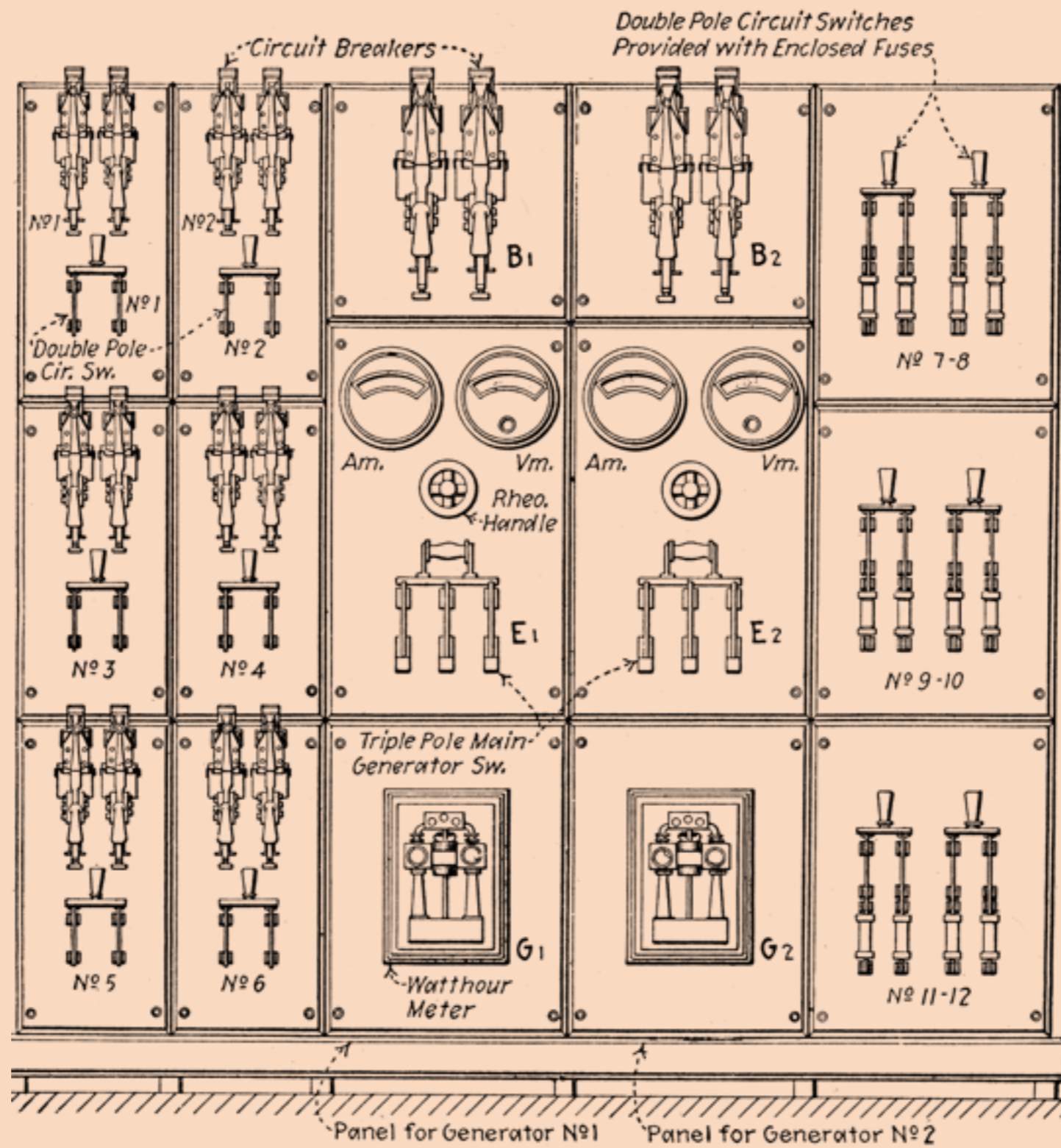
- Pull based
- Simple server
- Solid tools

# Omnibus

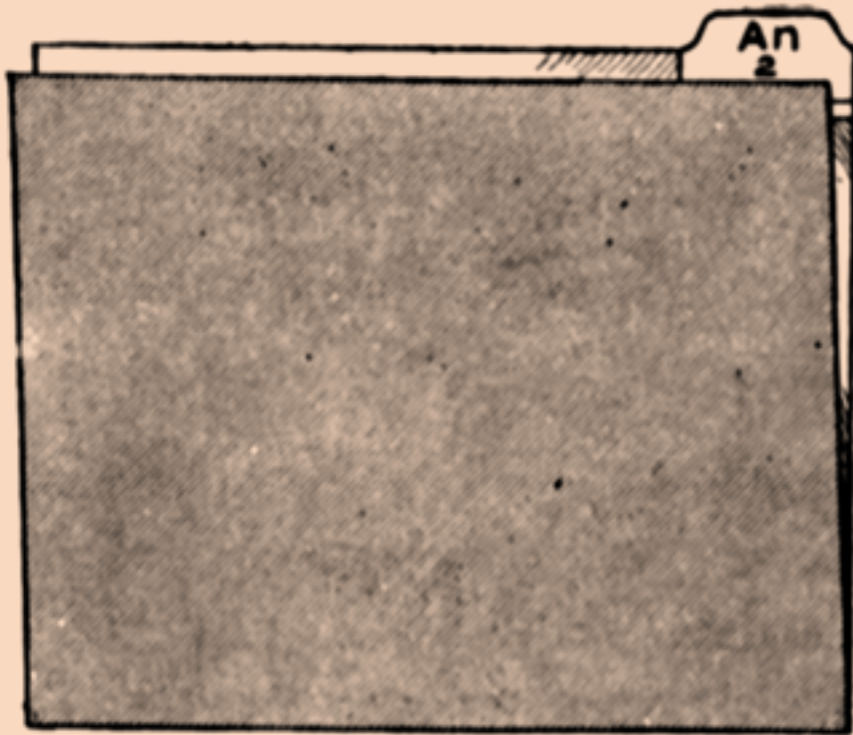


- Build packages
- No moving parts
- See also: depot

# Configuration Management



# Flat Files



- Versioned
- Readable
- Inflexible



# Chef

- Ruby-based
- Declarative-ish
- Big ecosystem

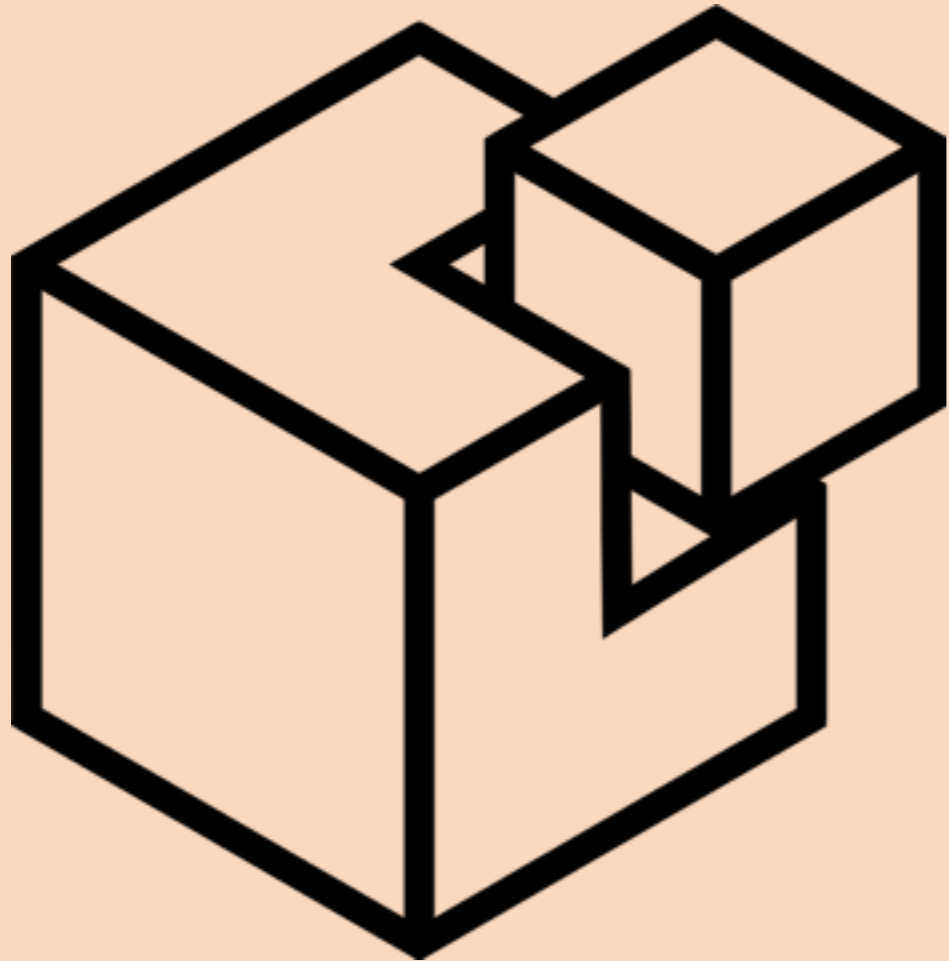
# Puppet



- Custom DSL
- Declarative
- Big ecosystem



# SaltStack

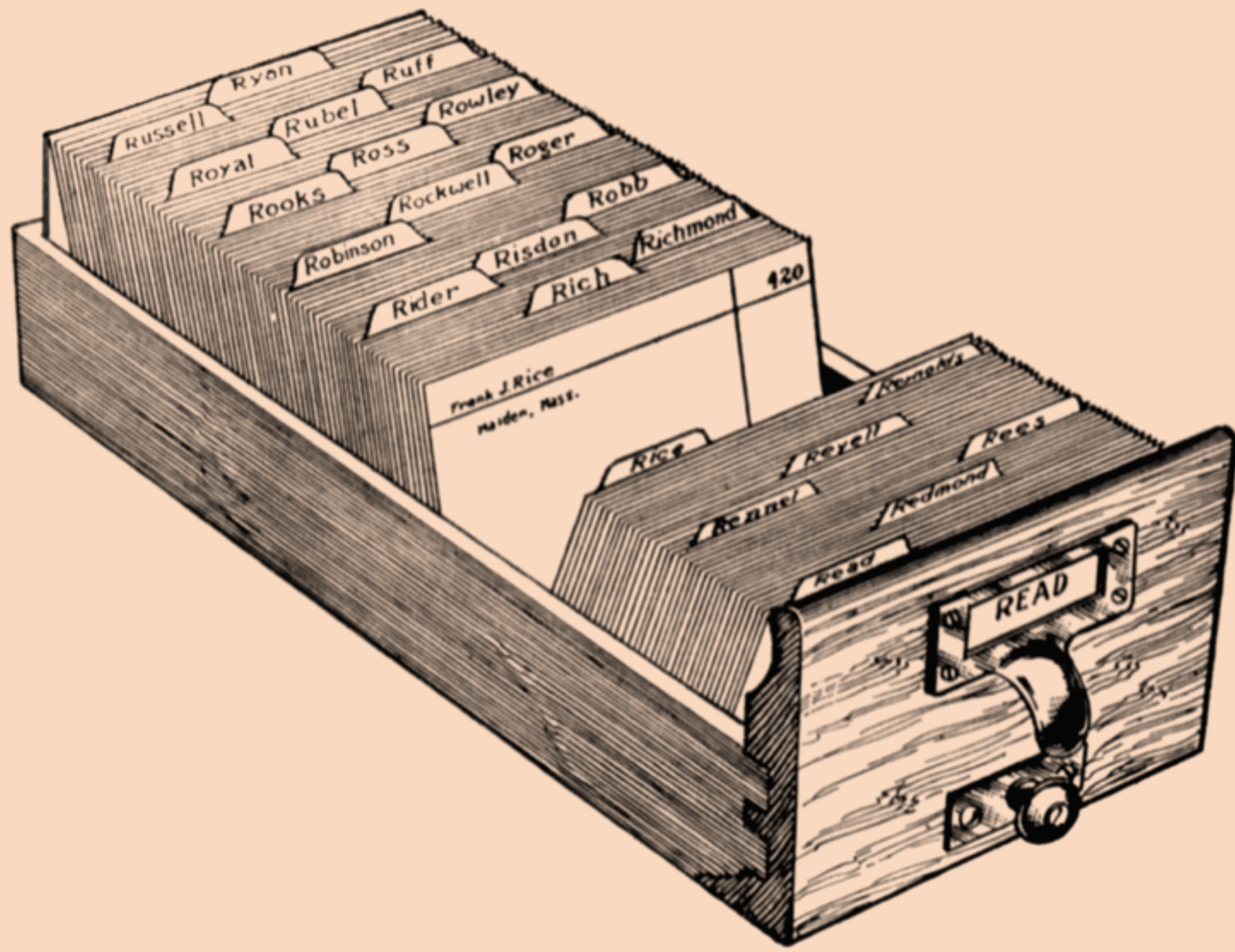


- **YAML + Jinja**
- **Second wave**
- **Growing**

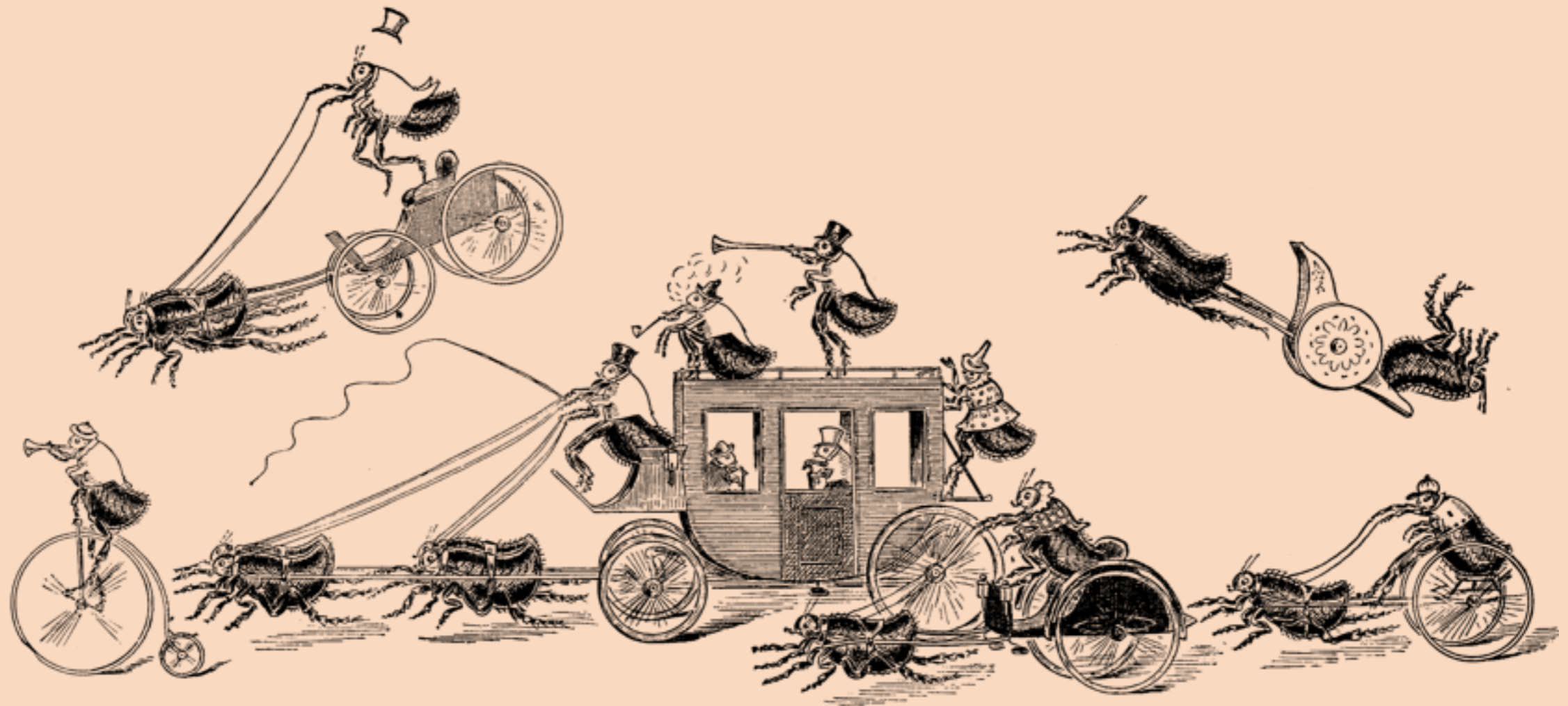
# Ansible



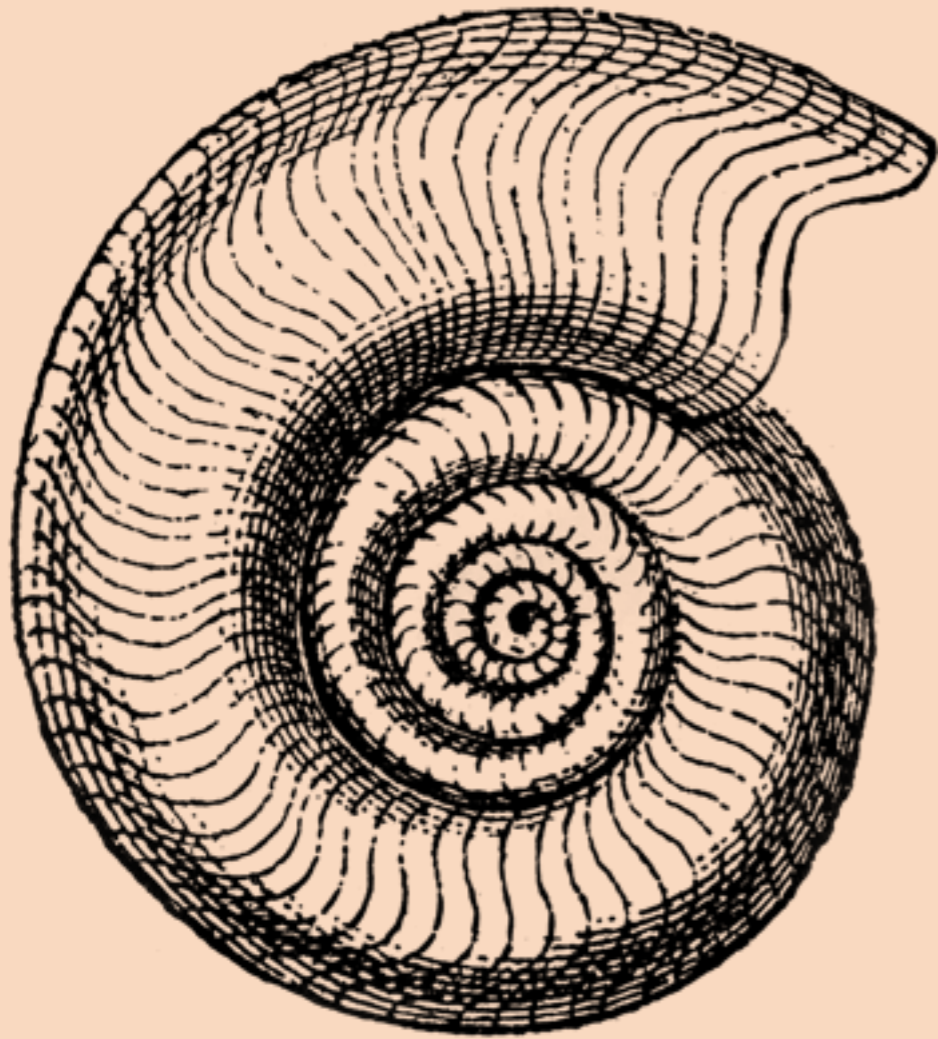
- **YAML + Jinja**
- **Very new**
- **Agent-less**



# Orchestration



# SSH Loop



- `for x in ...`
- `ssh $x ...`
- `knife ssh`

# Fabric



- Python
- Task based
- Parallel

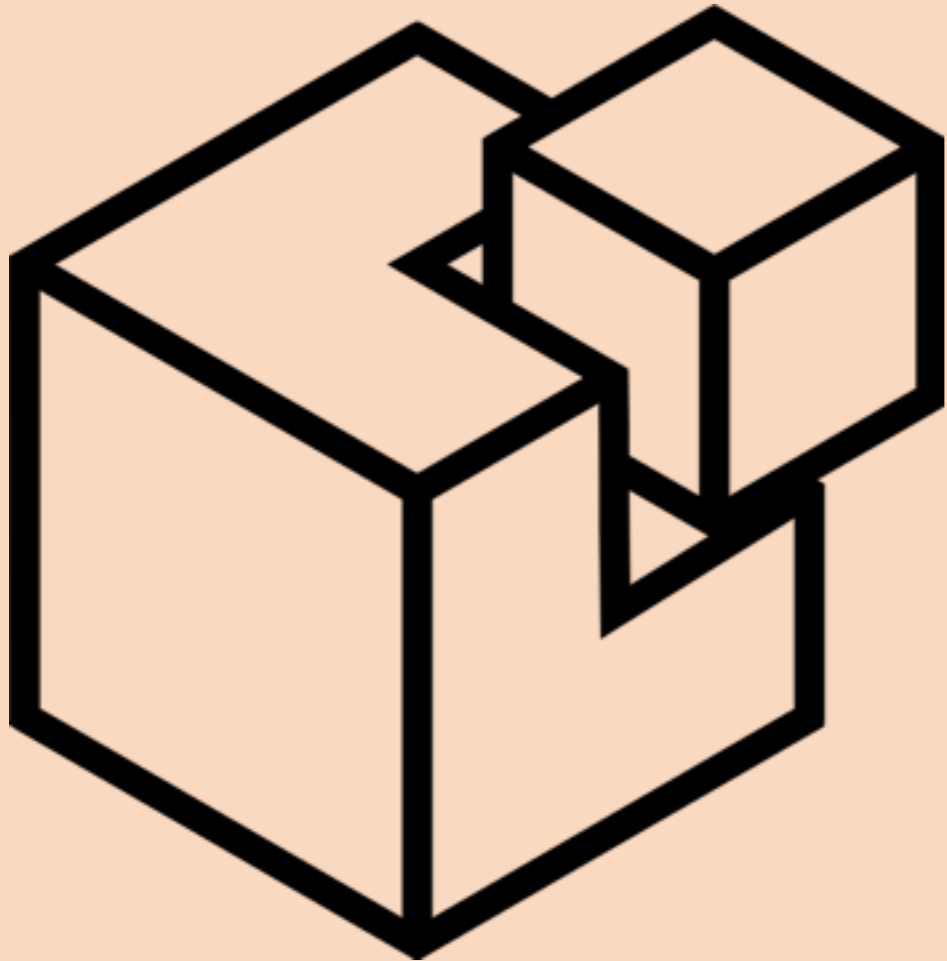
# Ansible



- Ad-hoc shell
- Dynamic nodes
- Accelerated



# SaltStack



- ZeroMQ
- Minions only
- Modules

# MCollective

- AMQP bus
- Limited ad-hoc
- Live discovery



# Rundeck

- API-driven
- Centralized
- Workflows

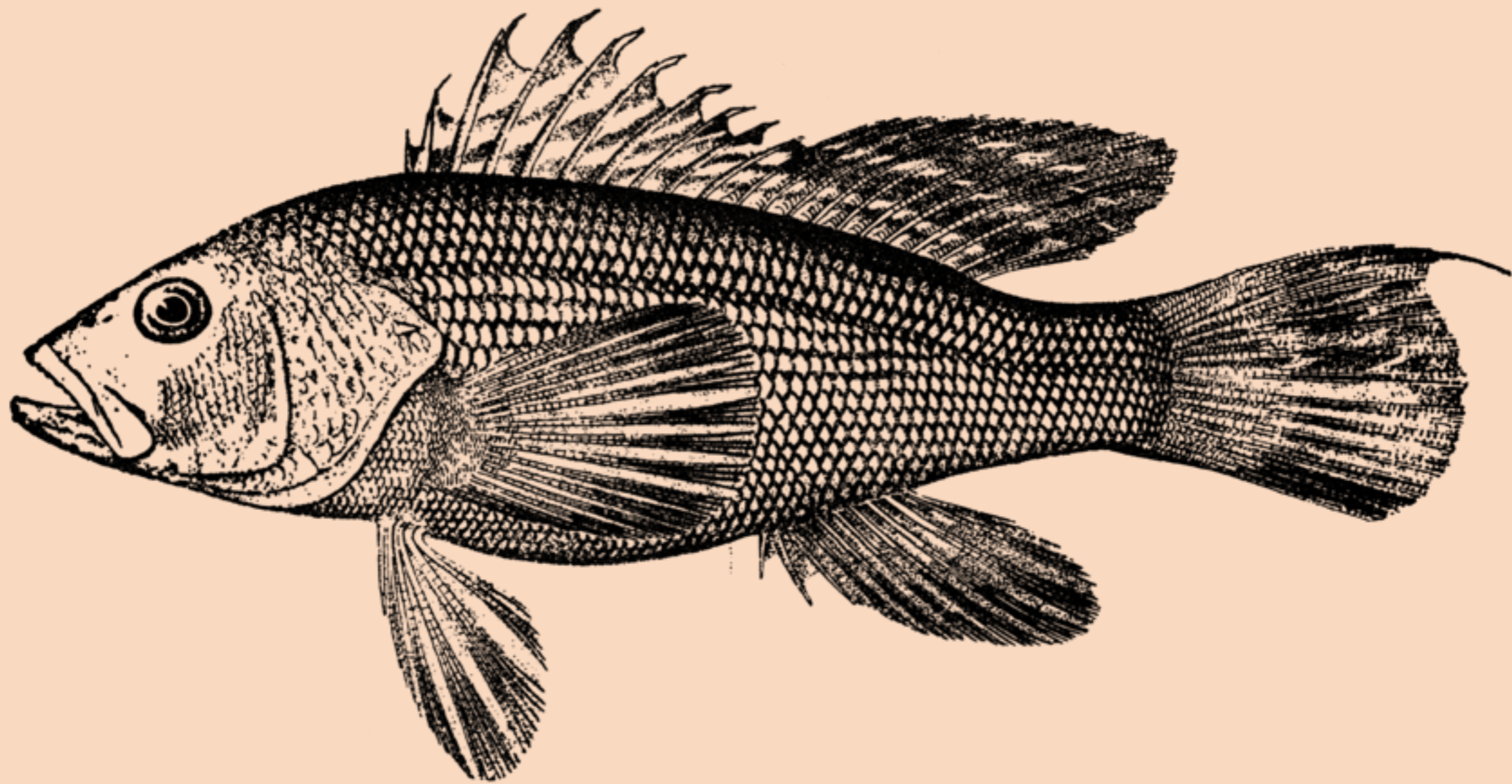


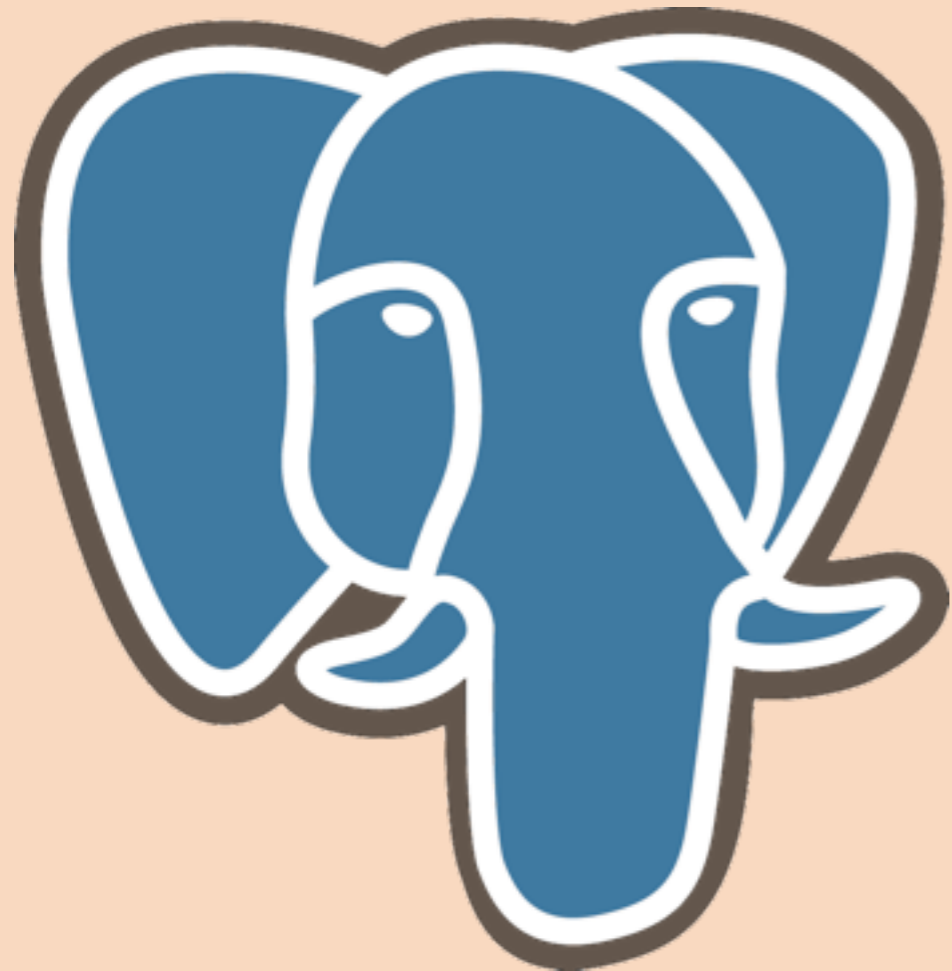


# Chatops

- Hubot
- Visibility
- Emerging trend

Database





# Postgres

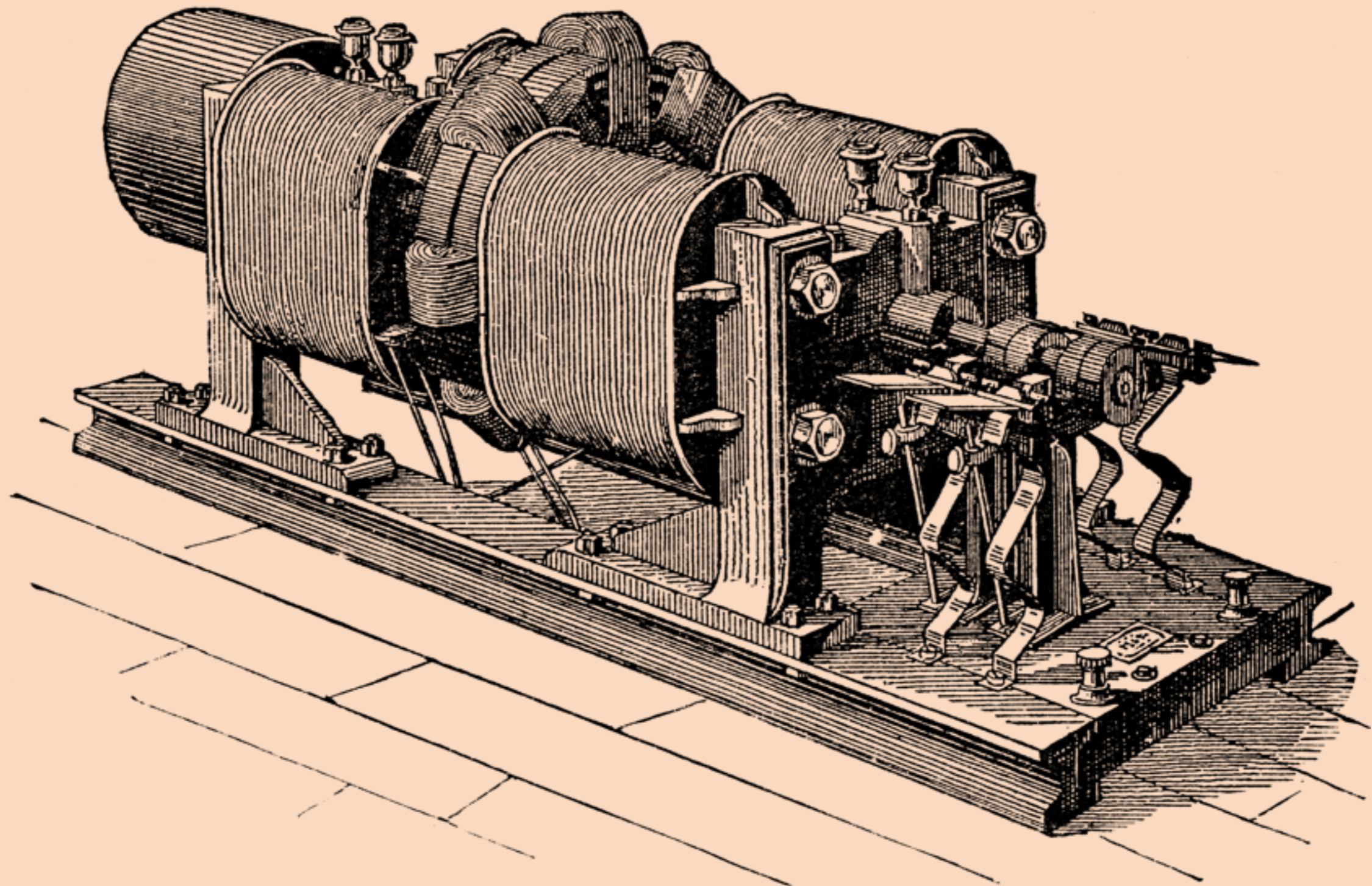
- Relational
- ACID
- Add-ons galore

# MySQL



- Relational
- Mostly ACID
- Many forks





# Redis



- Key/value store
- In-memory
- Limited HA

# Cassandra



- Distributed
- Big Table
- CQL

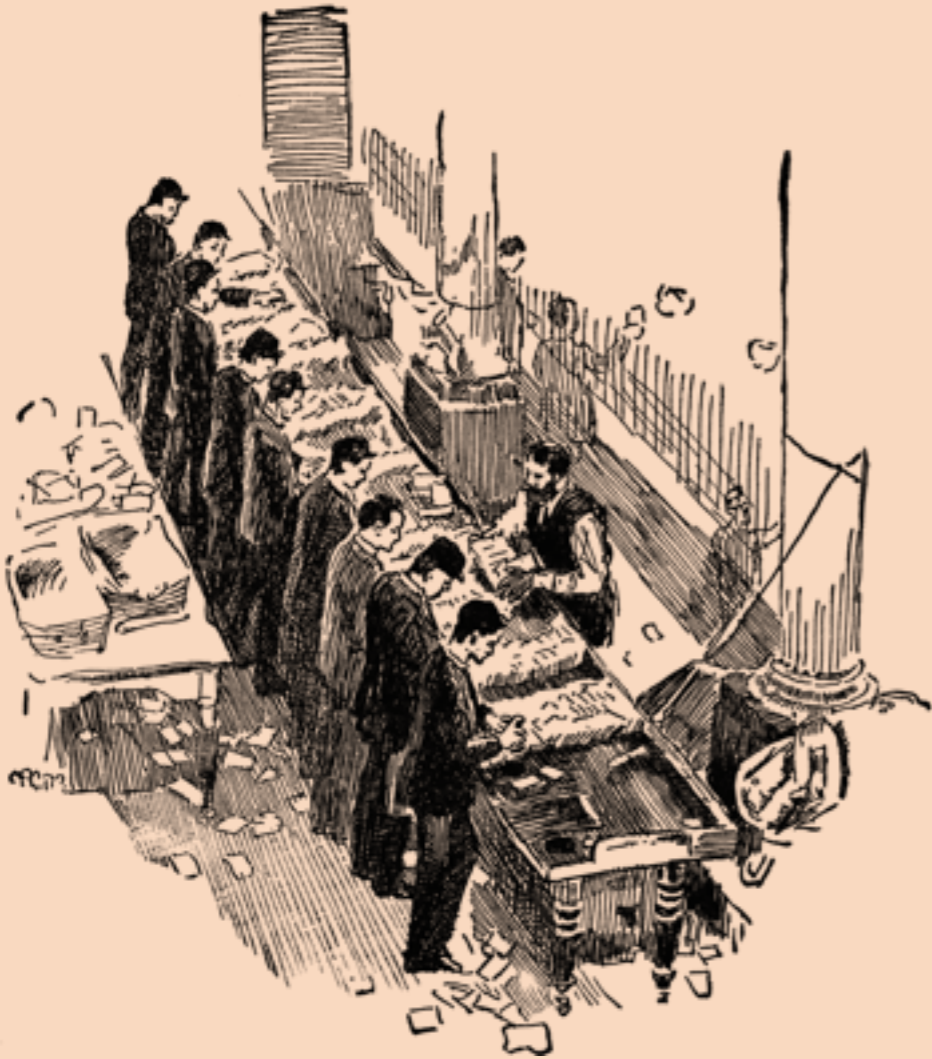
# Riak



- Distributed
- 2i, Search, MR
- CRDTs

# Others

- MongoDB
- Couch\*
- Interns

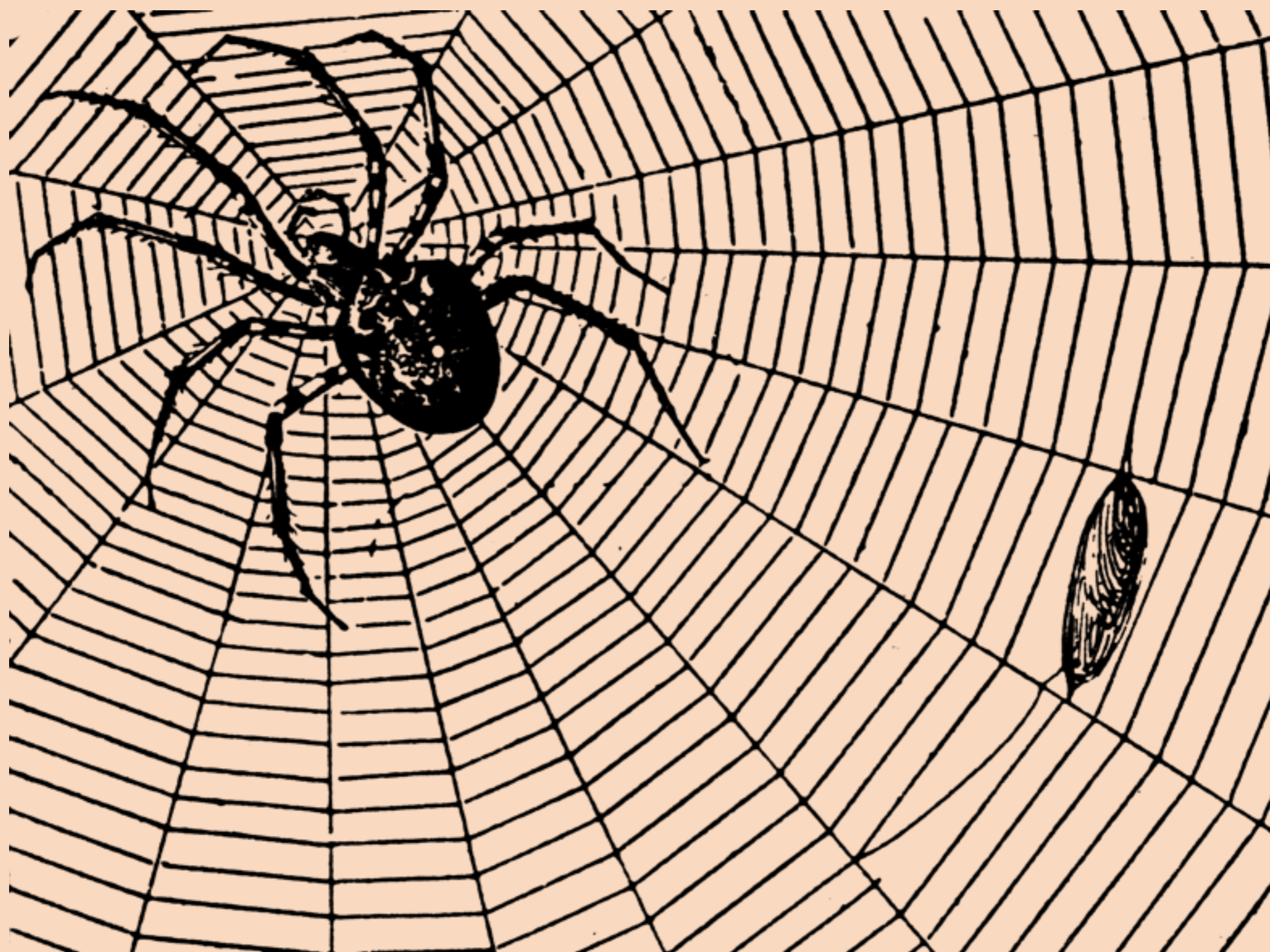




# ZooKeeper

- Consistent
- Slow
- Paxos

# Web Server





# Apache

- Battle tested
- Flexible MPMs
- `mod_wsgi`

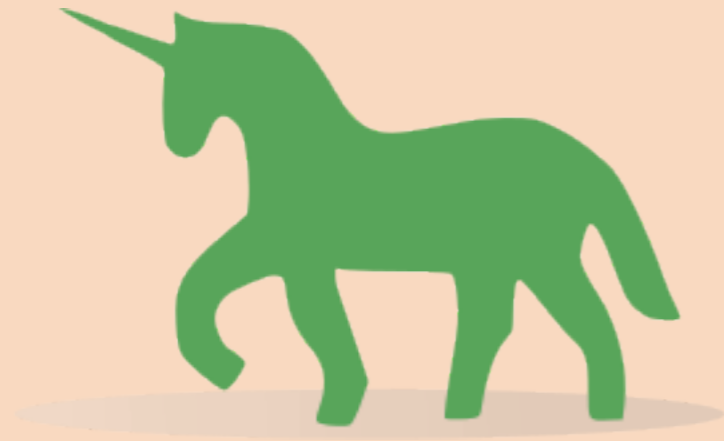


**NGINX**

# Nginx

- Concurrent
- Simple config
- Proxy

# Gunicorn



- Pure Python
- Simple
- Fast

The logo for uwsgi, featuring a lowercase 'u' in light green followed by 'WSGI' in a bold, dark grey sans-serif font. A small green dot is positioned above the 'S'.

# Uwsgi

- C extension
- Extra features
- Config soup

# Twisted



- Really fast
- Mix w/ async
- Complex

# CDNs

- Fastly
- CloudFront
- Varnish



# Server Provisioning



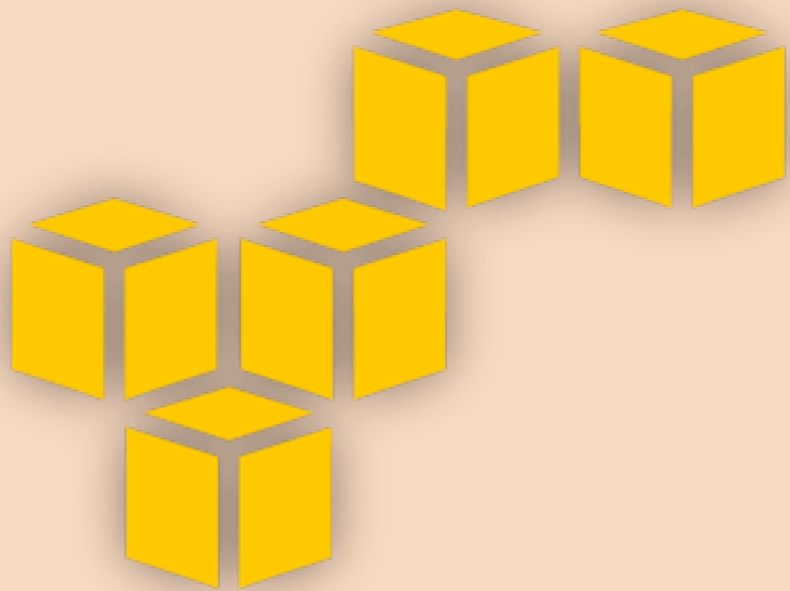




# Manual

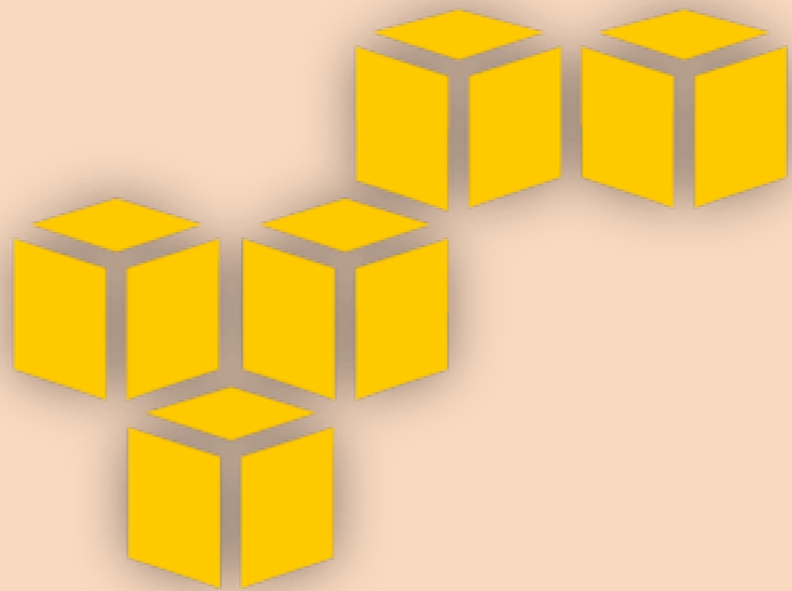
- knife ec2
- novaclient
- Web UI

# AWS ASGs



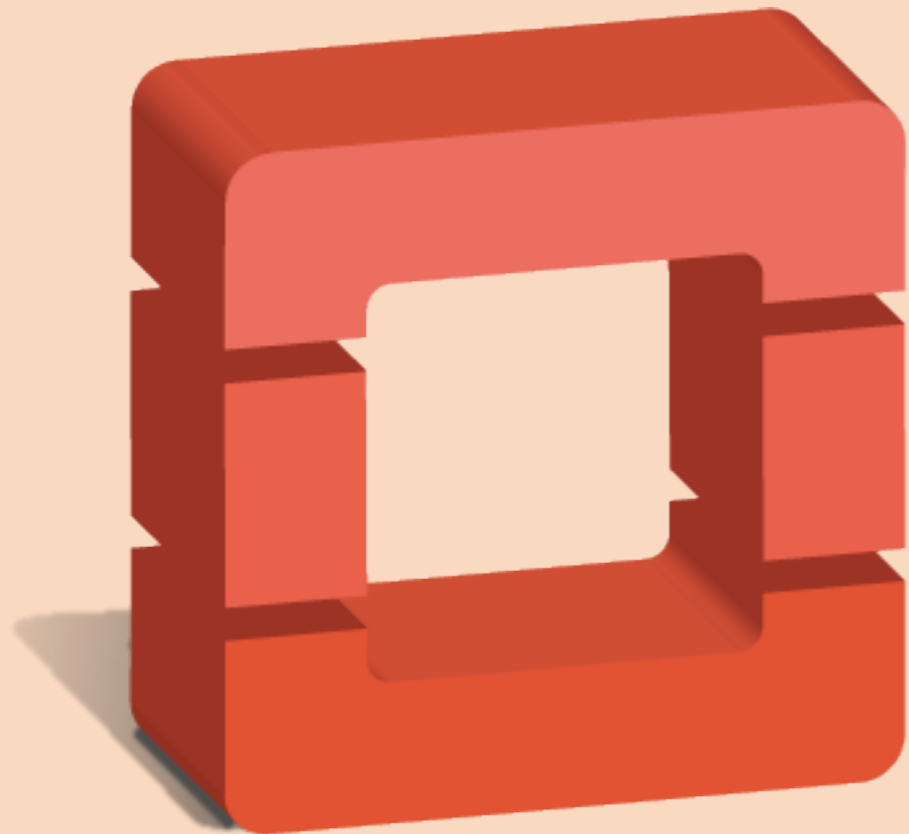
- Vendor lock-in
- Limited triggers
- Easy

# CloudFormation



- Whole infra
- Fragile state
- Very powerful

# Heat



- OpenStack
- Yaml format
- Limited compat

# RightScale

- Expensive
- Cross-cloud
- Chef

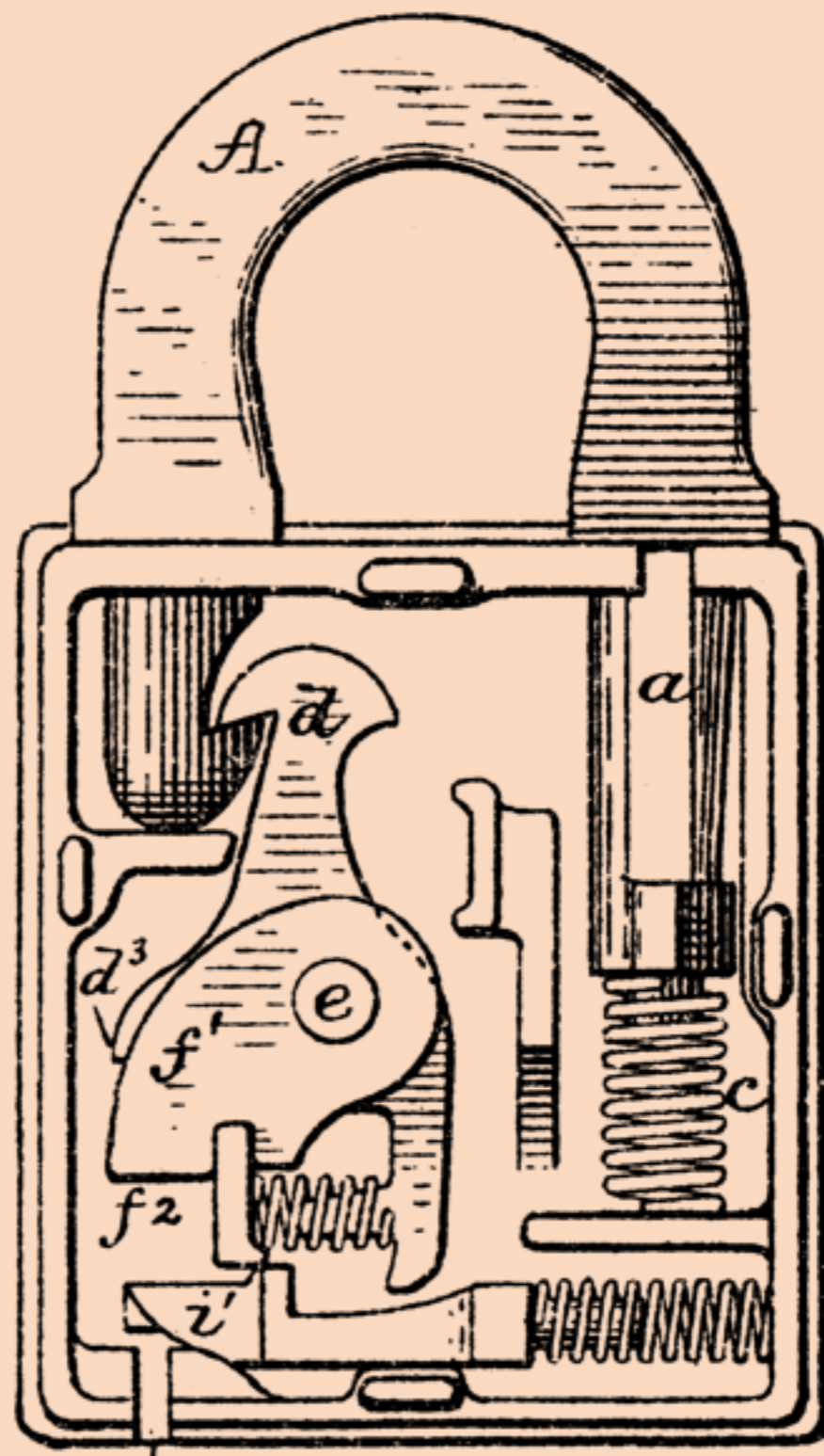
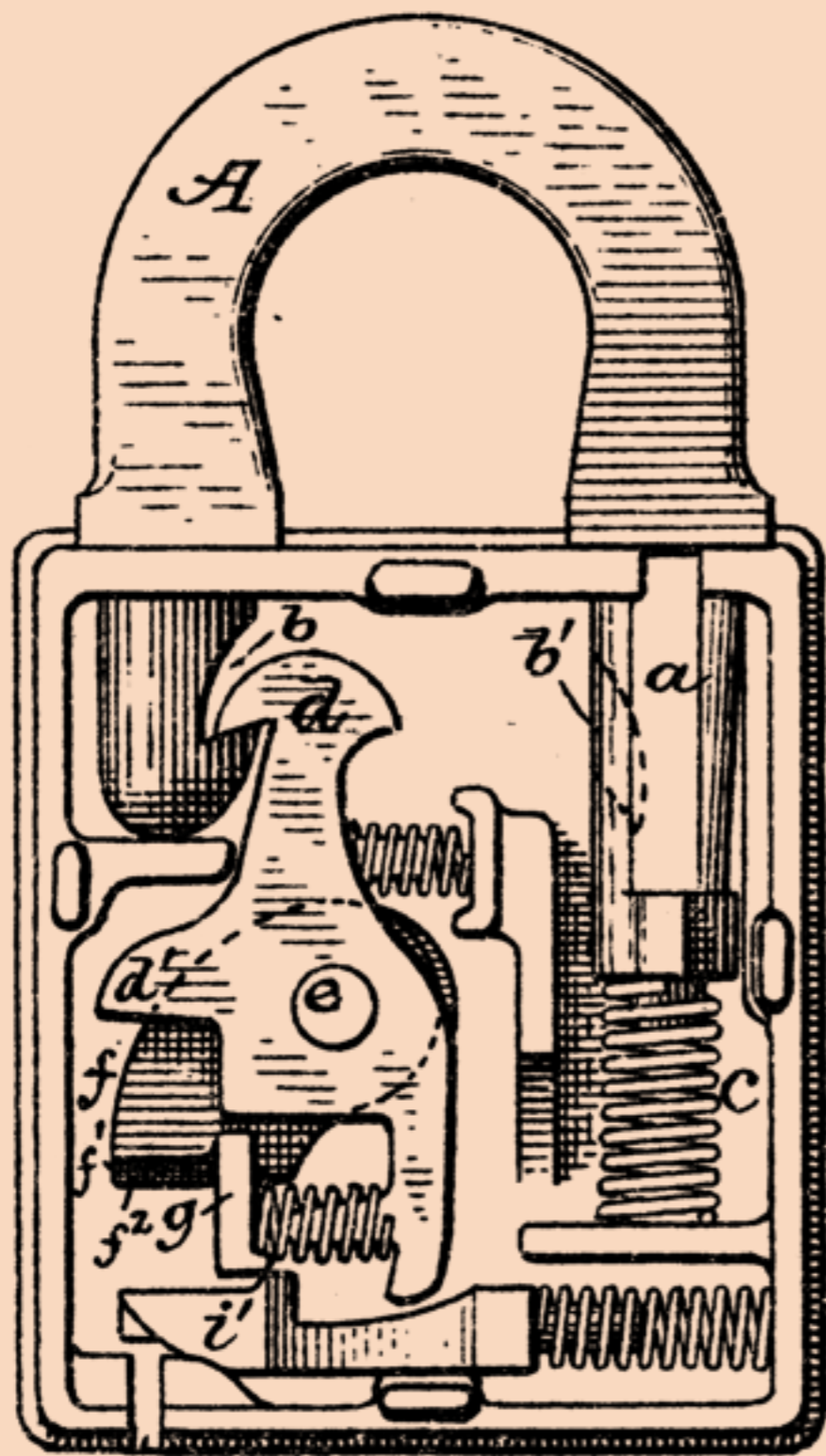
**RIGHT SCALE**<sup>®</sup>

# Asgard



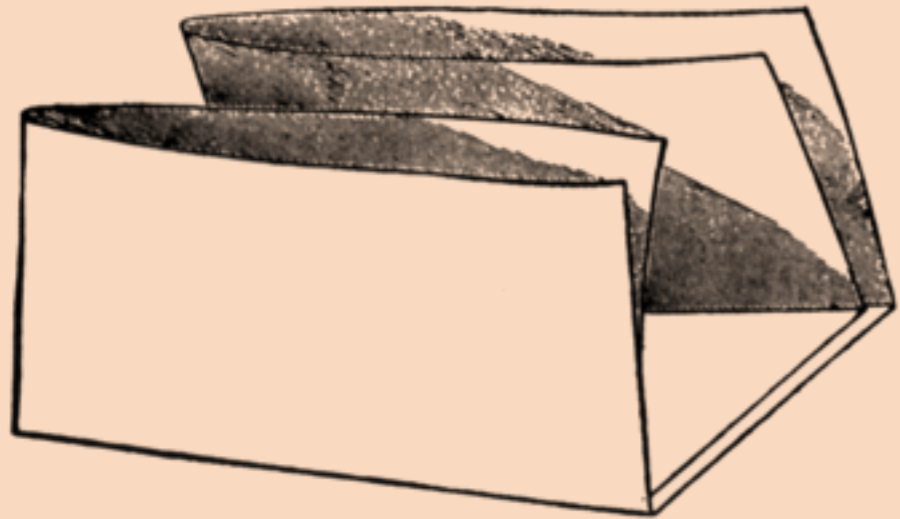
- Netflix stack
- AWS ASGs
- Deployment

# Secrets Management



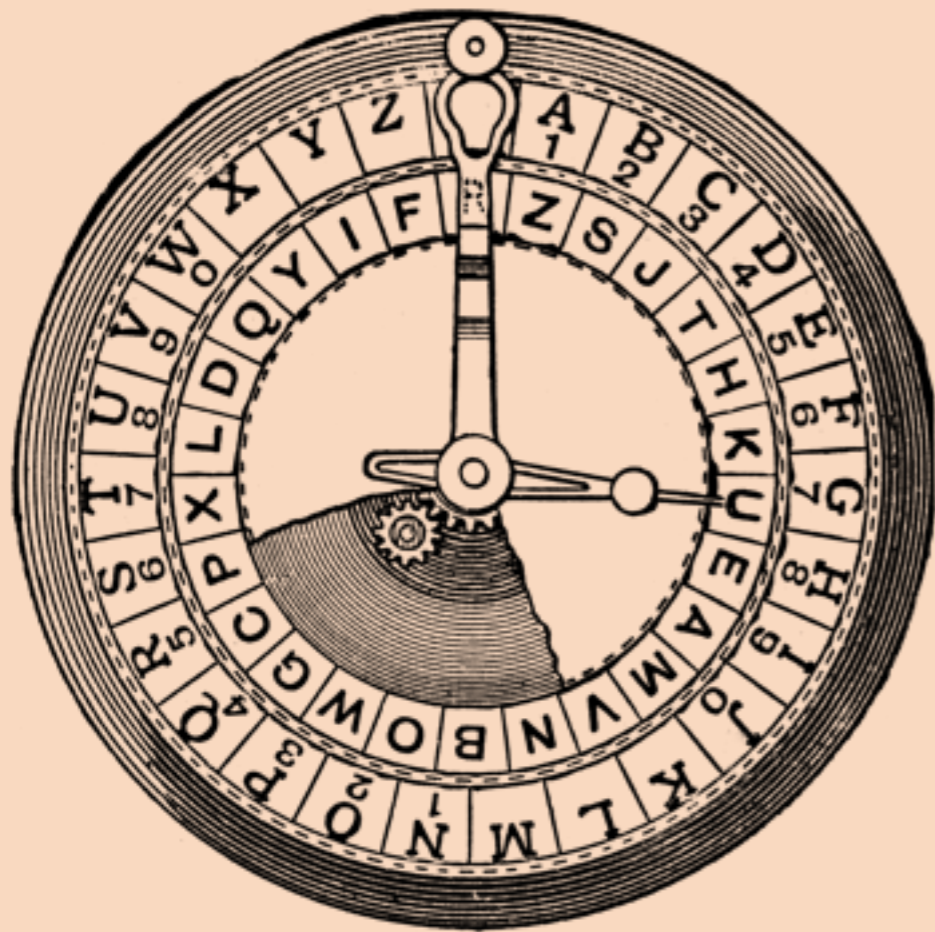


# Config



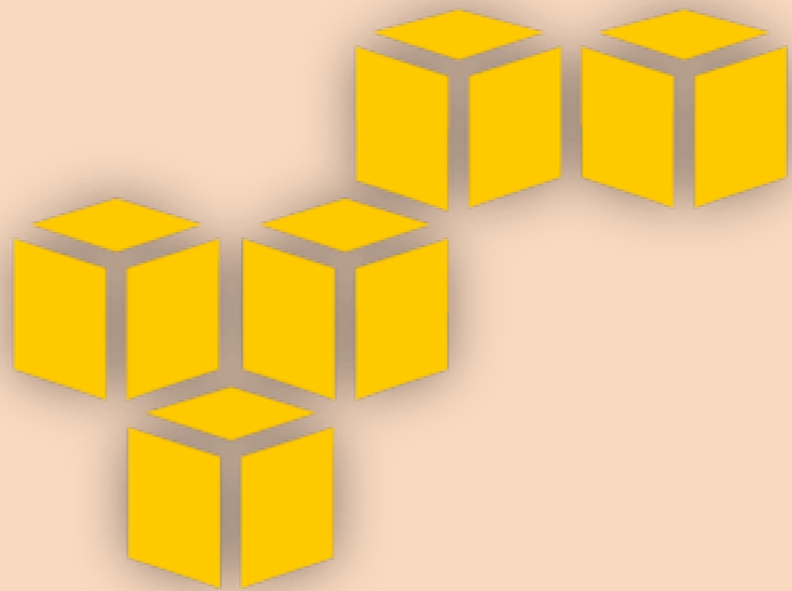
- Existing tools
- Versioned
- Insecure

# Encryption

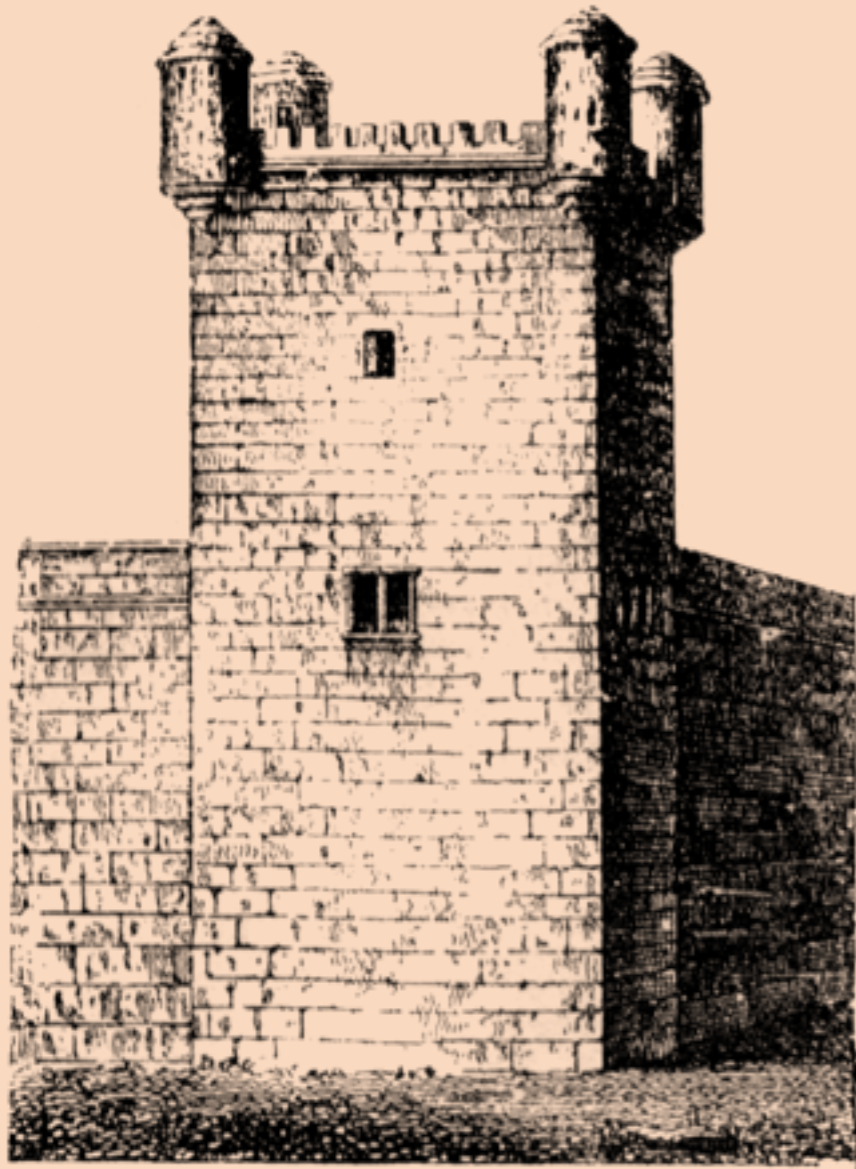


- Encrypted bags
- Ansible Vault
- Unwise

# S3+IAM

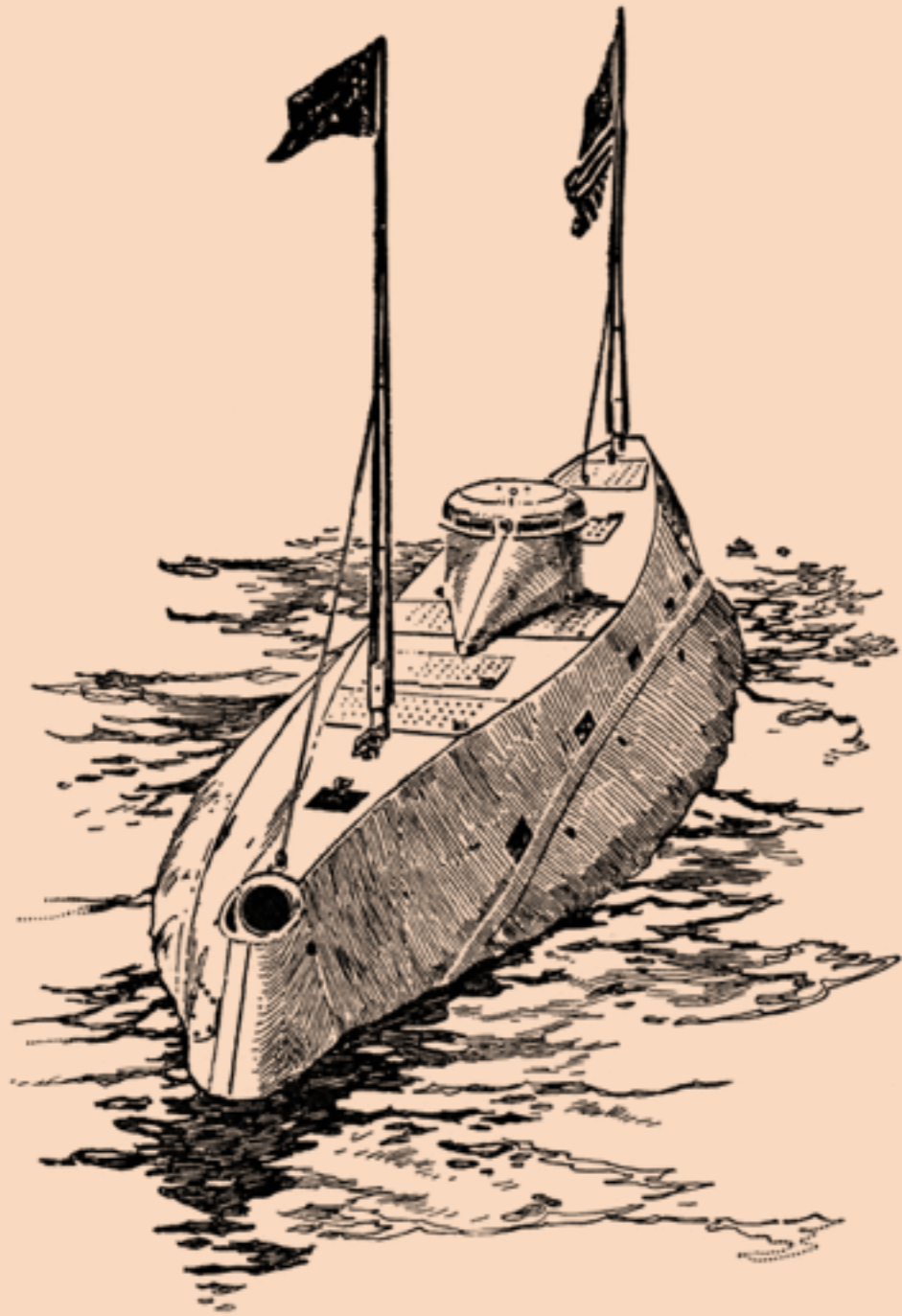


- Vendor lock in
- Moving pieces
- Relatively safe



# Barbican

- OpenStack(ish)
- Very new
- Promising



# Red October

- N-of-M
- Cold storage
- GPG-based

Other  
services



# Metrics

- Statsd
- Collectd
- Graphite

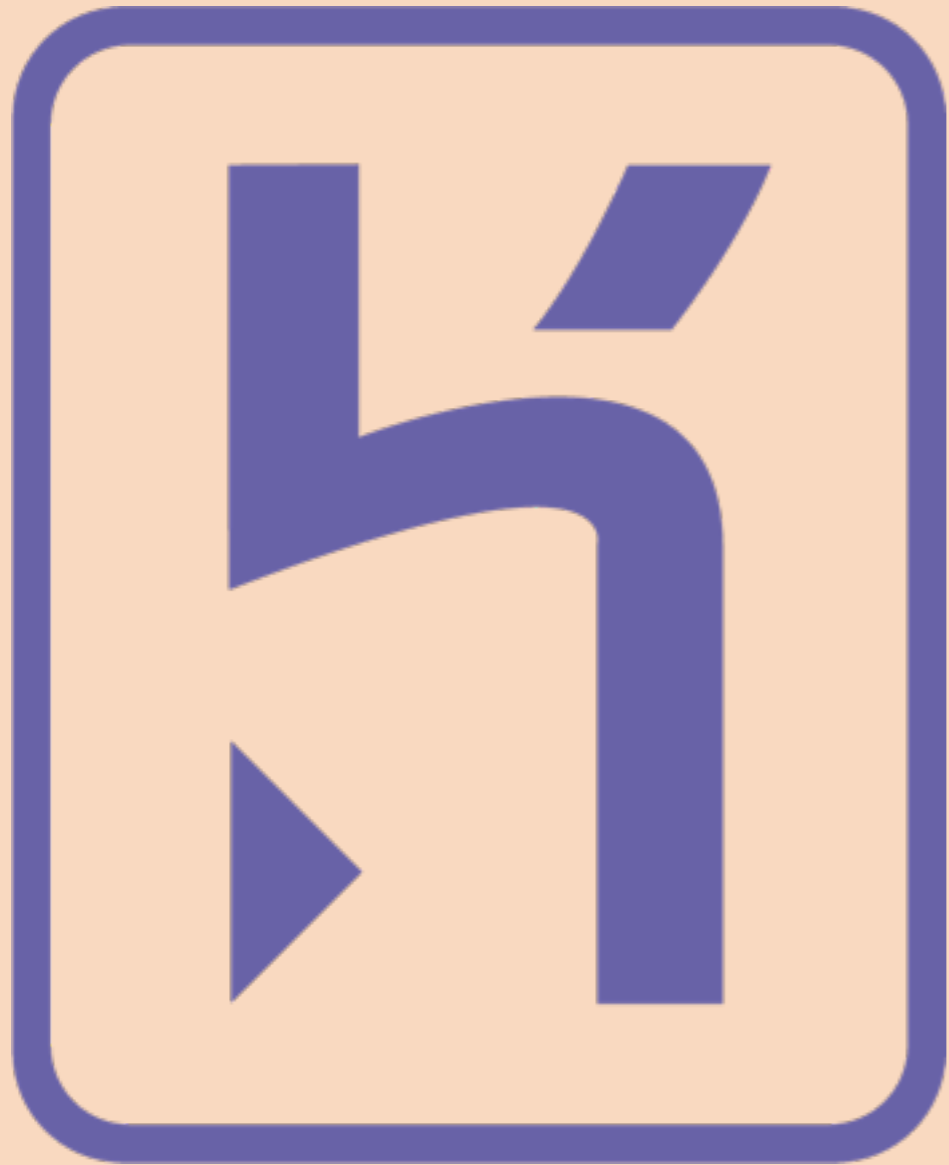


# Logs

- Logstash
- Kibana
- Sentry



# Platform as a Service



# Heroku

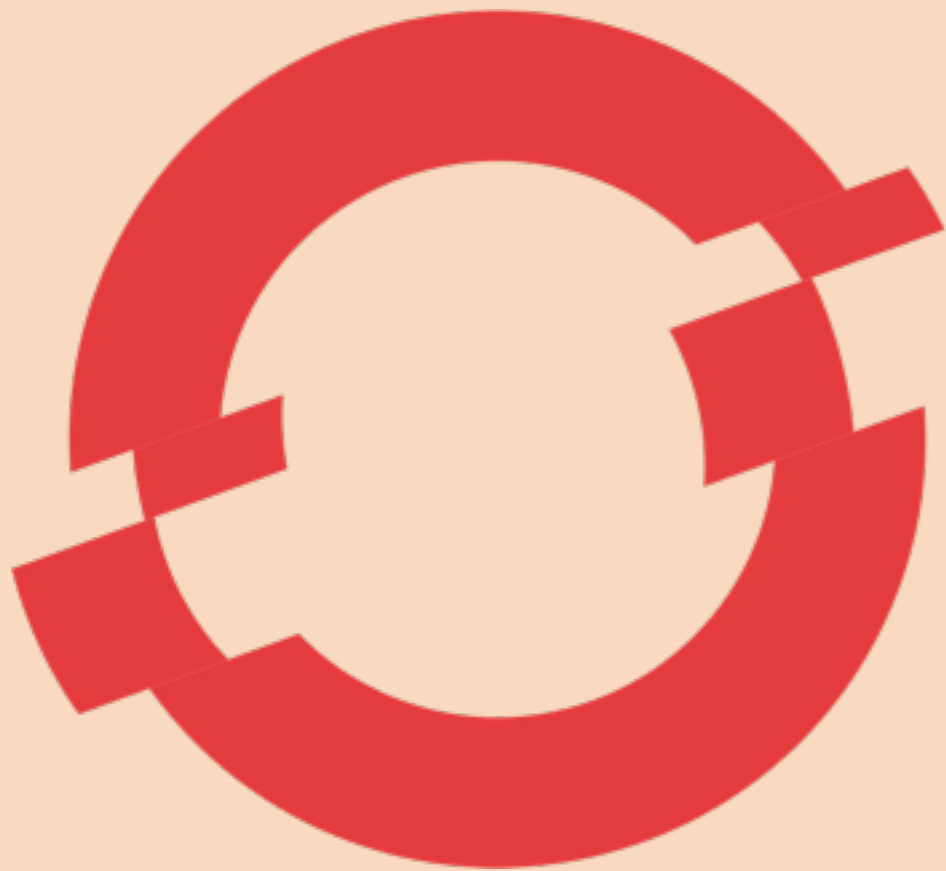
- Easy
- No really, easy
- Inflexible & \$\$\$

# GAE

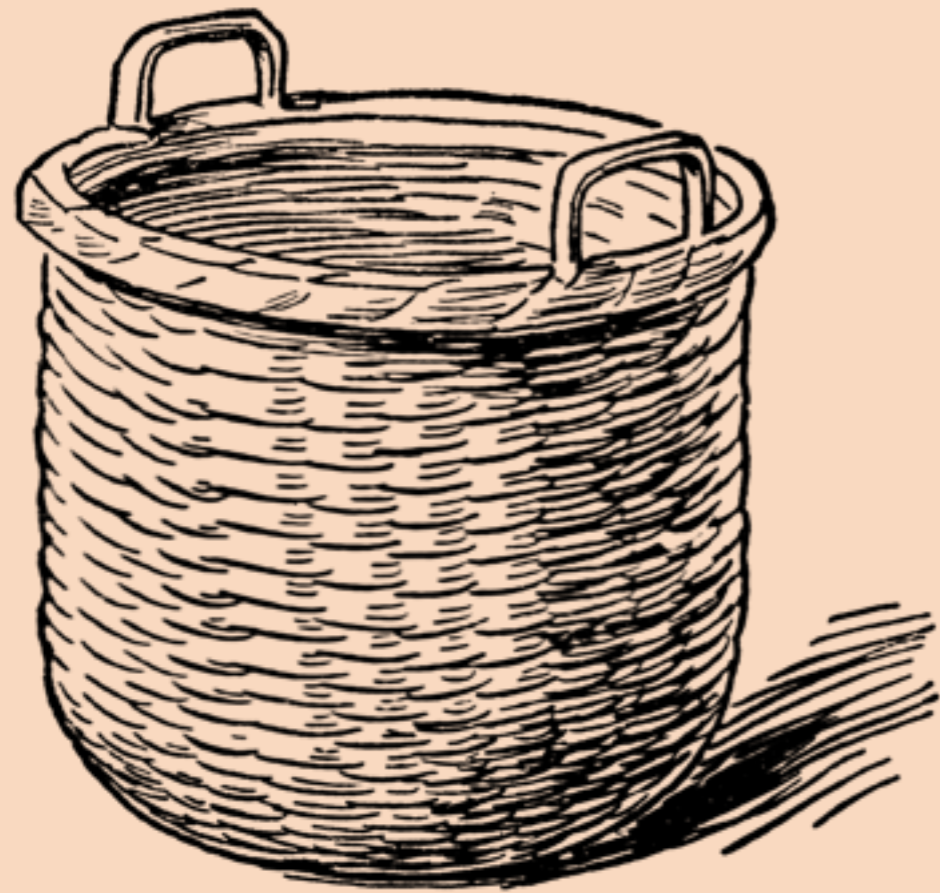


- Mild lock-in
- Scalable
- Few users

# OpenShift



- Open-source
- No lock-in
- Difficult deploy



# Deis/Flynn

- Docker-based
- Very young
- Promising

# Attribution

Some images copyright Florida Center for Instructional Technology.

All logos are property of their respective owners.

Thank you