+

WIKIMEDIA
FOUNDATION

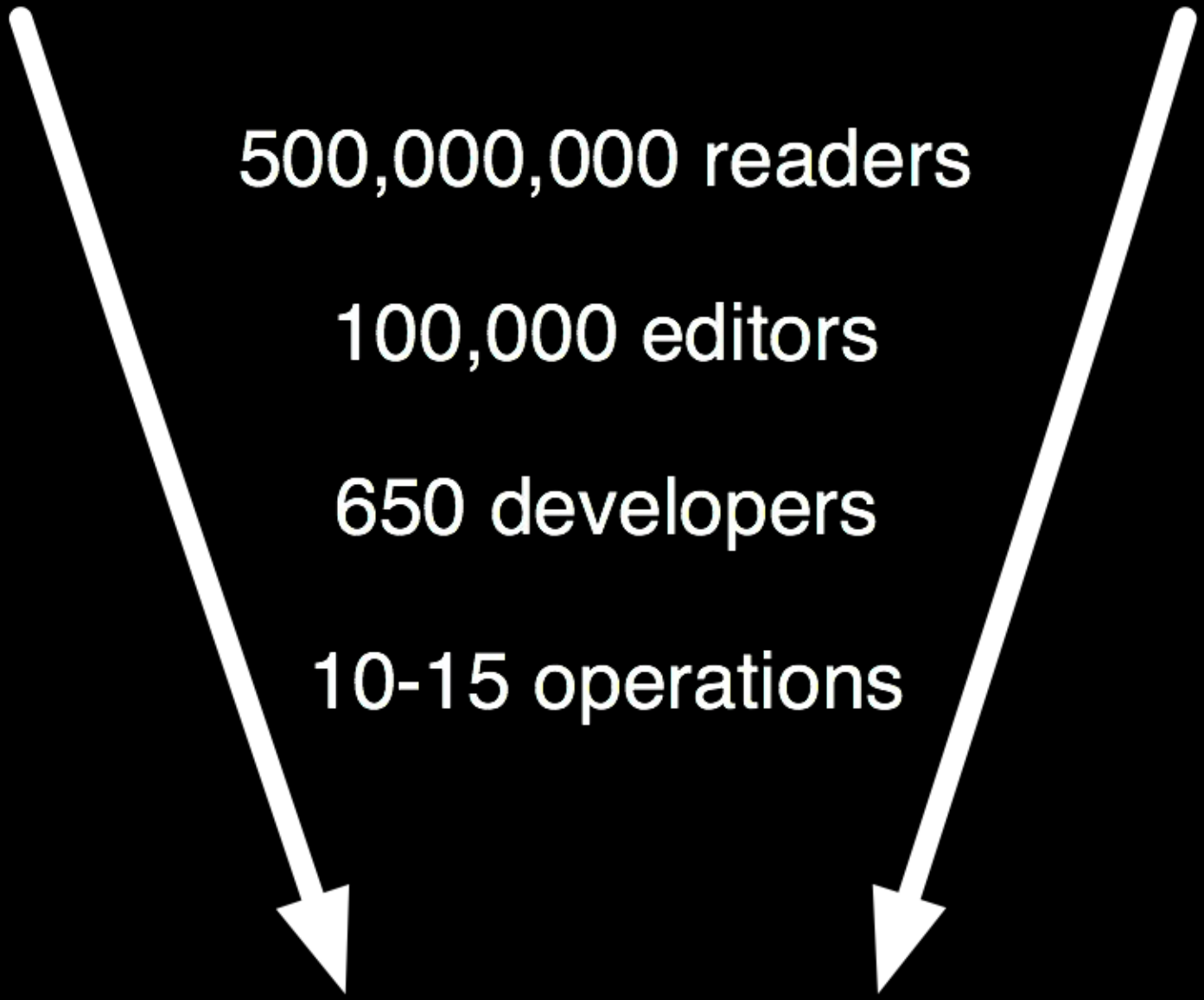
Puppet user since early 2009
~1000 hardware clients
~250 virtual clients

Nearly 100% production puppetized
~31,000 lines of puppet + erb
67 contributors

Early Tech Community:
No staff

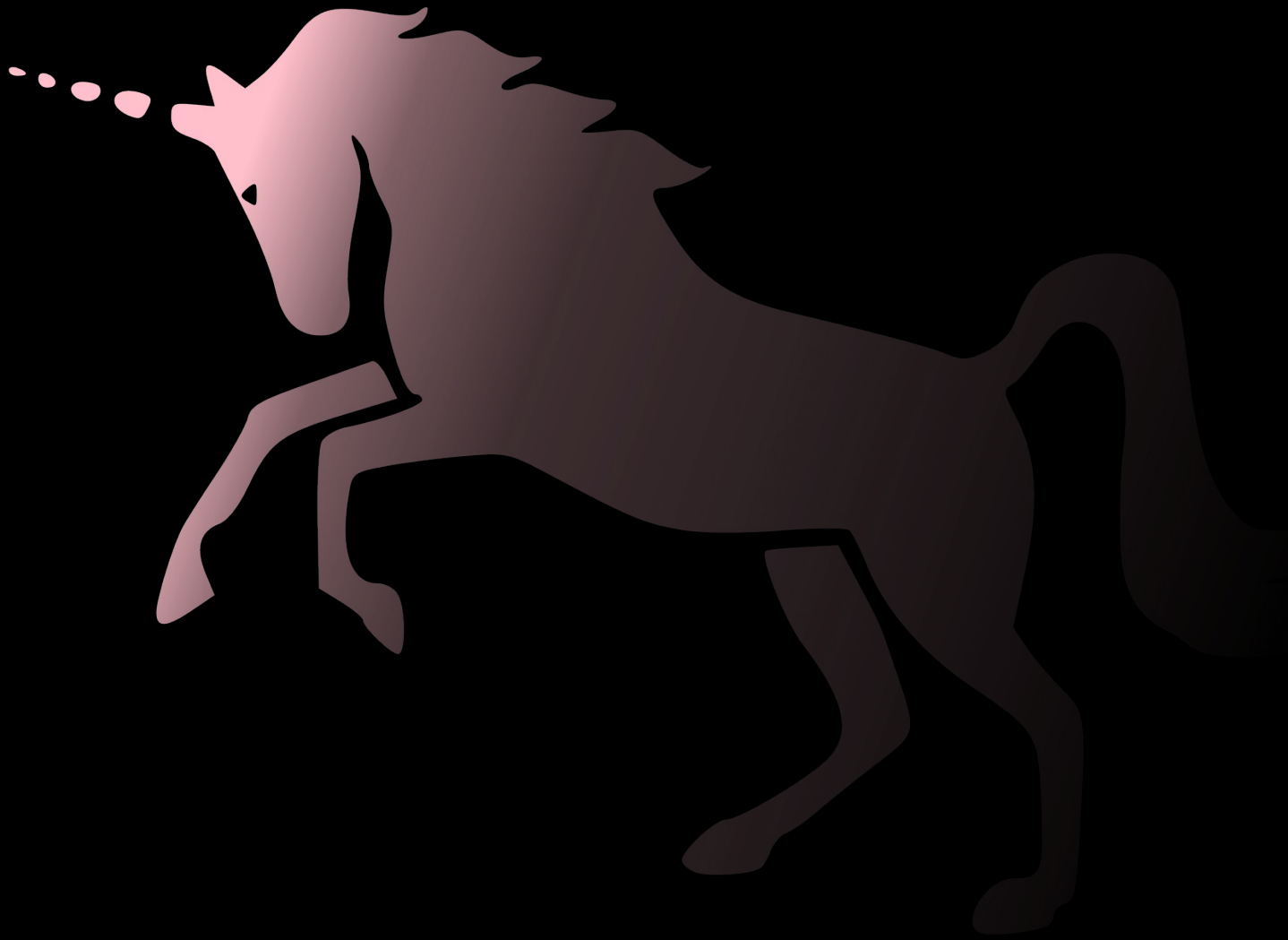
Current Ops Community:
No new volunteers

Ops

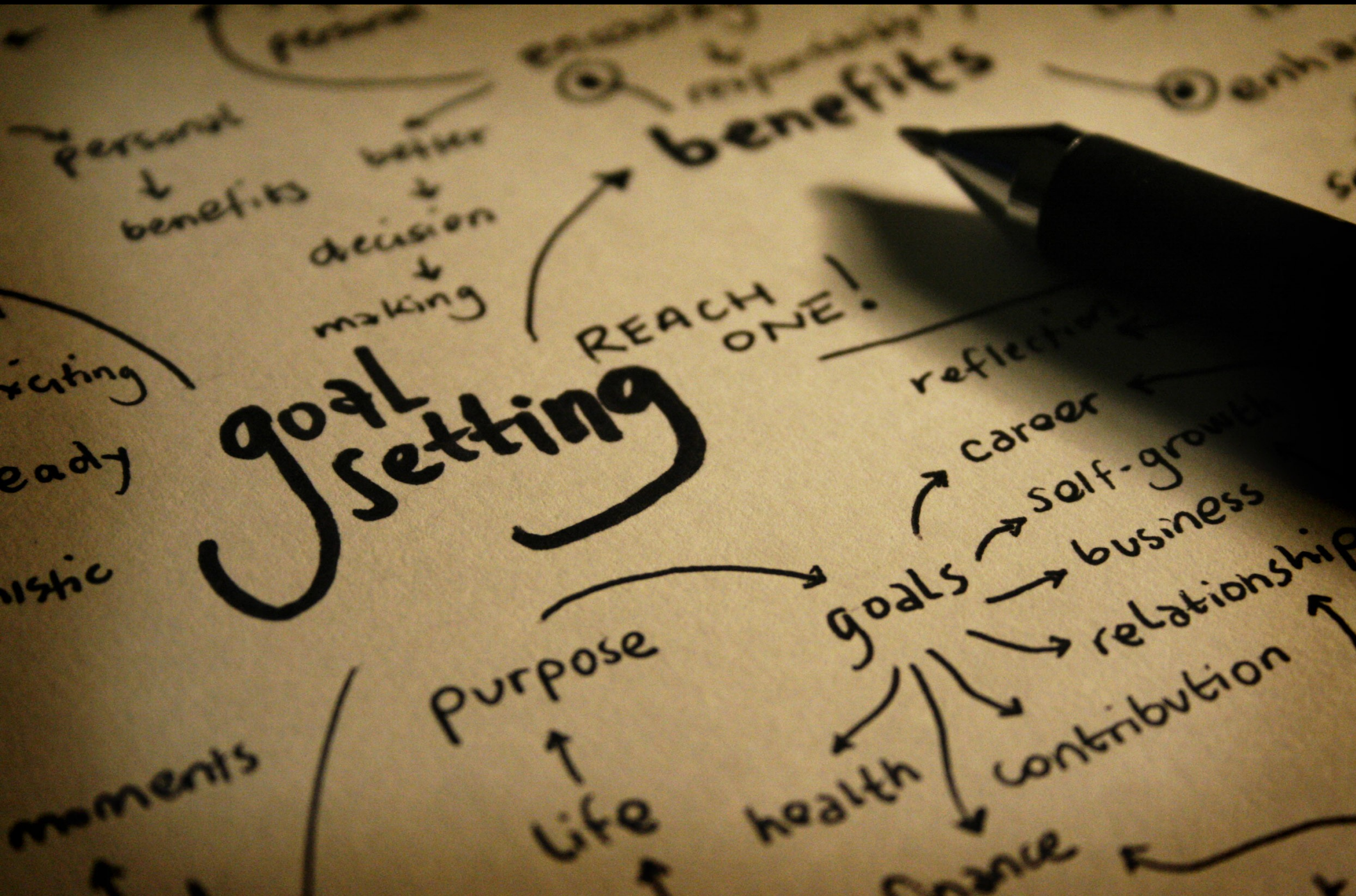

500,000,000 readers
100,000 editors
650 developers
10-15 operations

Open Infrastructure
to Volunteers

WIKIMEDIA
LABS

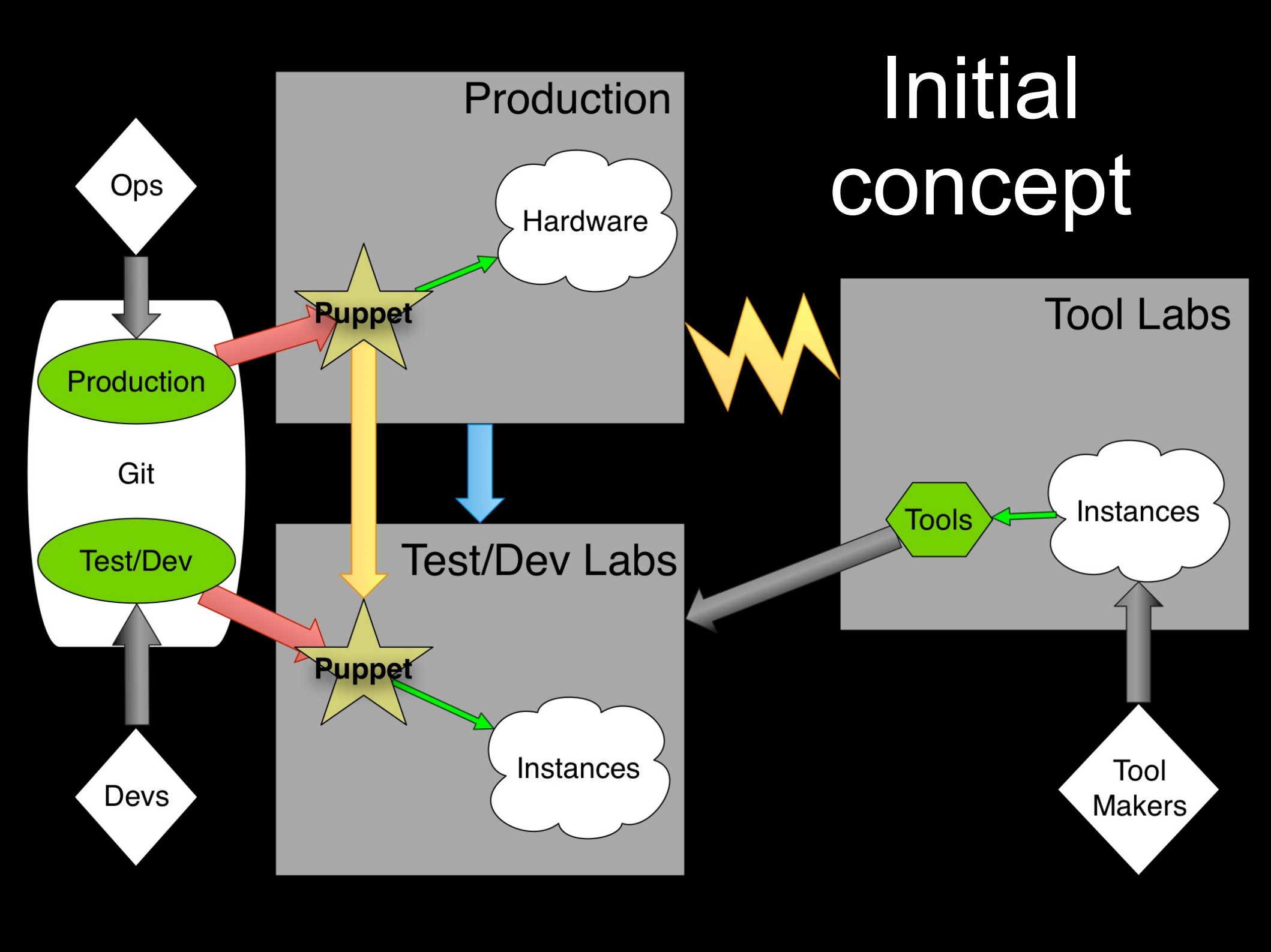


Goals



benefits
personal
benefits
better
decision
making
REACH ONE!
goal setting
career
self-growth
business
relationship
goals
purpose
contribution
health
life
moments

Initial concept

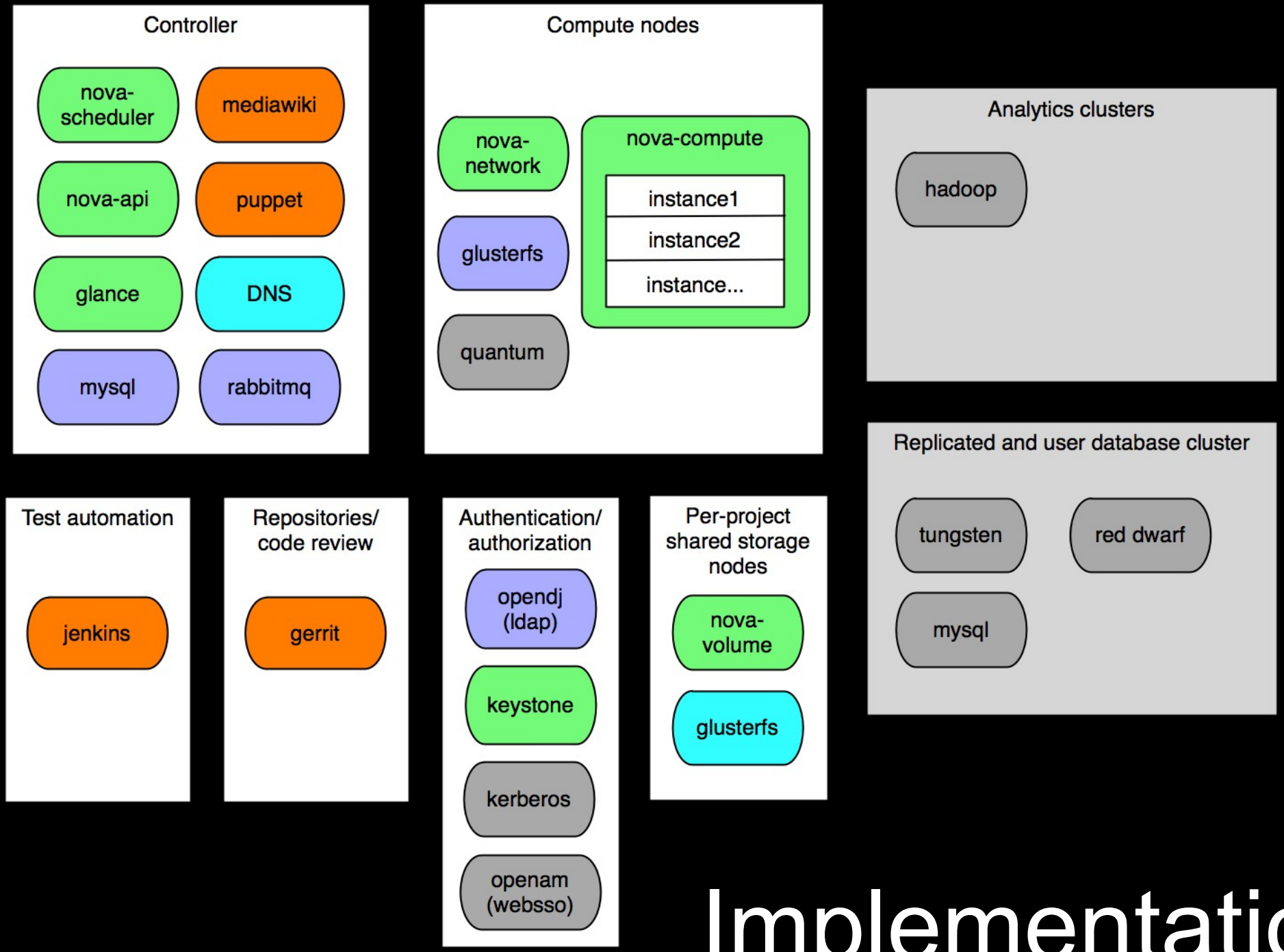


Release
the puppet repo

Release
the puppet repo

openstack™
CLOUD SOFTWARE

Projects.
Not customer accounts.

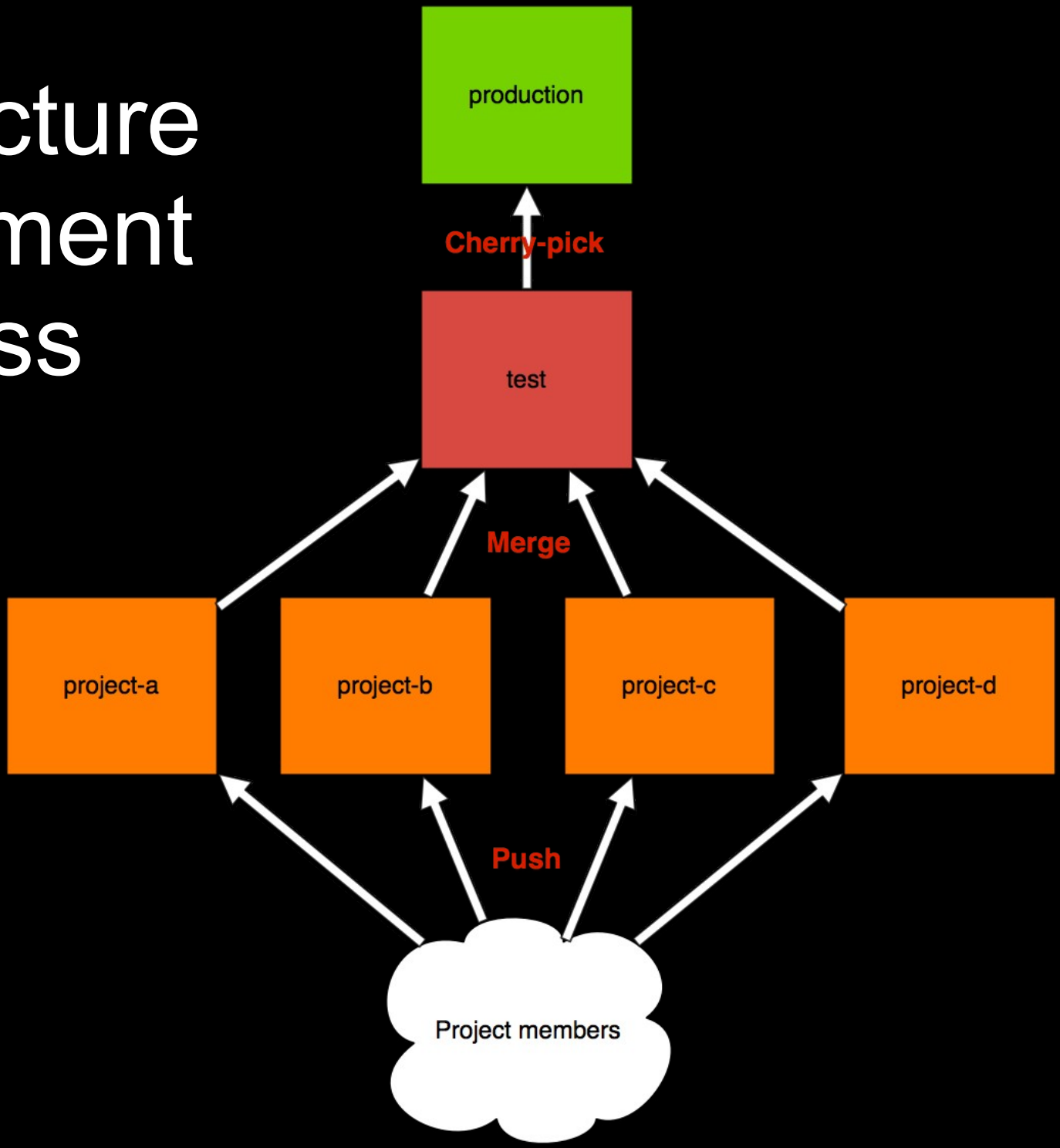

Controller
nova-scheduler
mediawiki
nova-api
puppet
glance
DNS
mysql
rabbitmq
Compute nodes
nova-network
nova-compute
instance1
instance2
instance...
glusterfs
quantum
Analytics clusters
hadoop
Replicated and user database cluster
tungsten
red dwarf
mysql
Test automation
jenkins
Repositories/ code review
gerrit
Authentication/ authorization
opendj (ldap)
keystone
kerberos
openam (websso)
Per-project shared storage nodes
nova-volume
glusterfs
Implementation

User creates instance
LDAP entry created
Instance created
User data installs puppet
Puppet master signs request
Instance builds

puppet apply

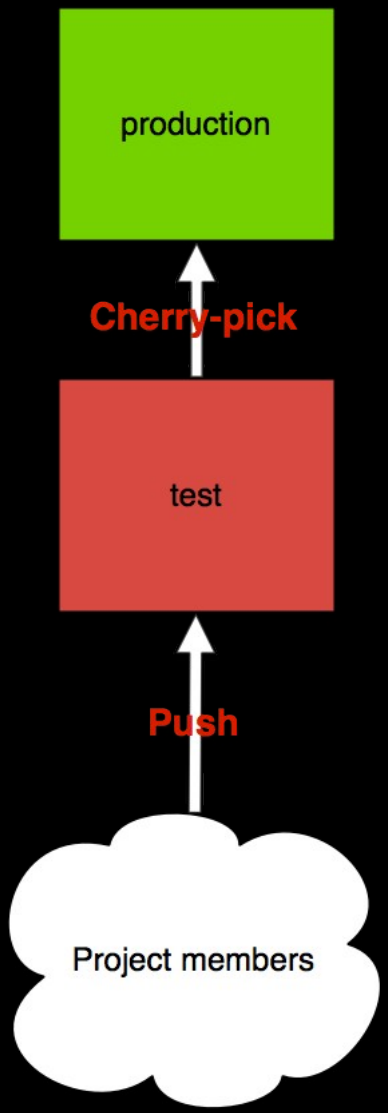
We didn't use modules!

Infrastructure development process

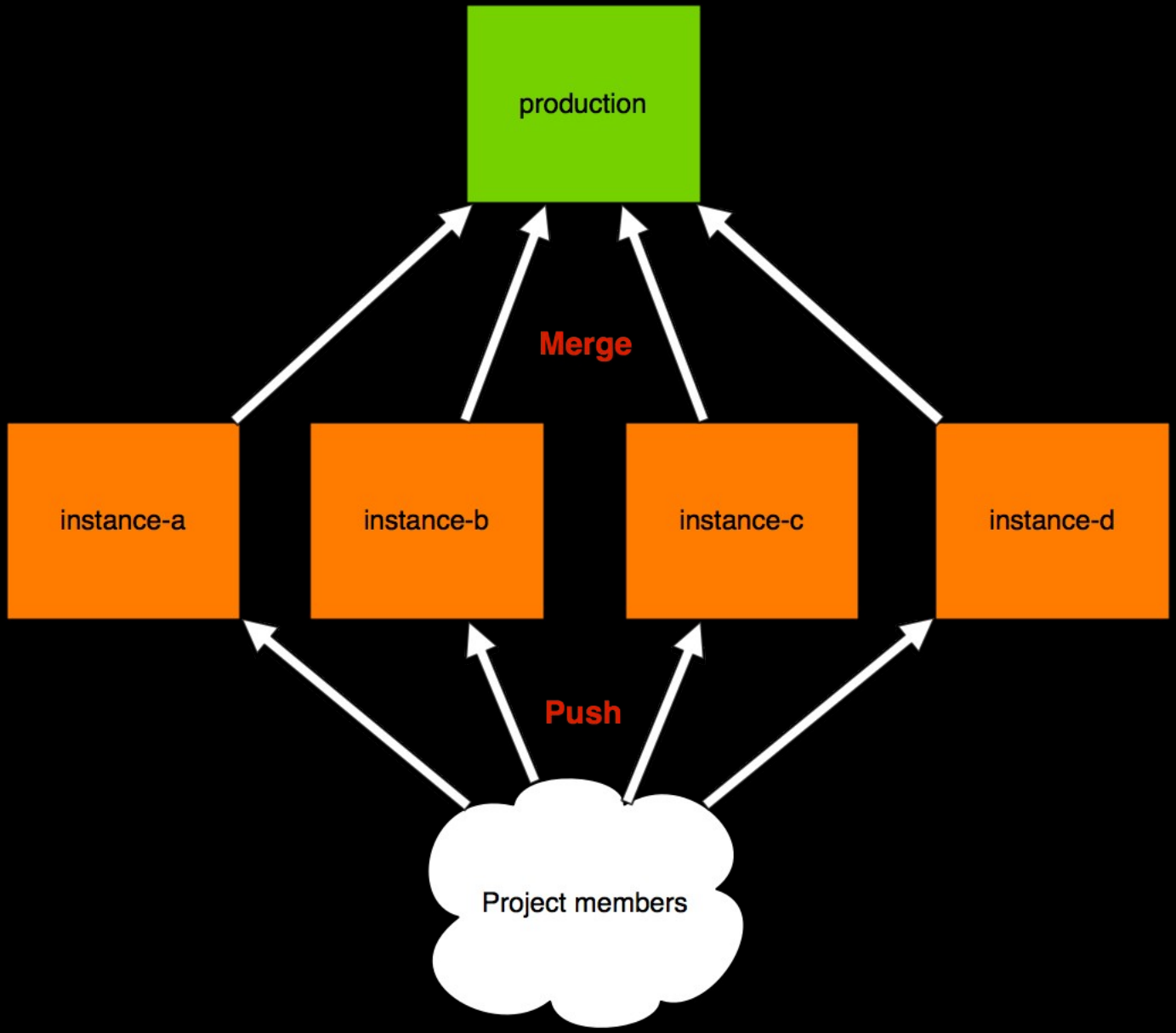


We didn't use modules!

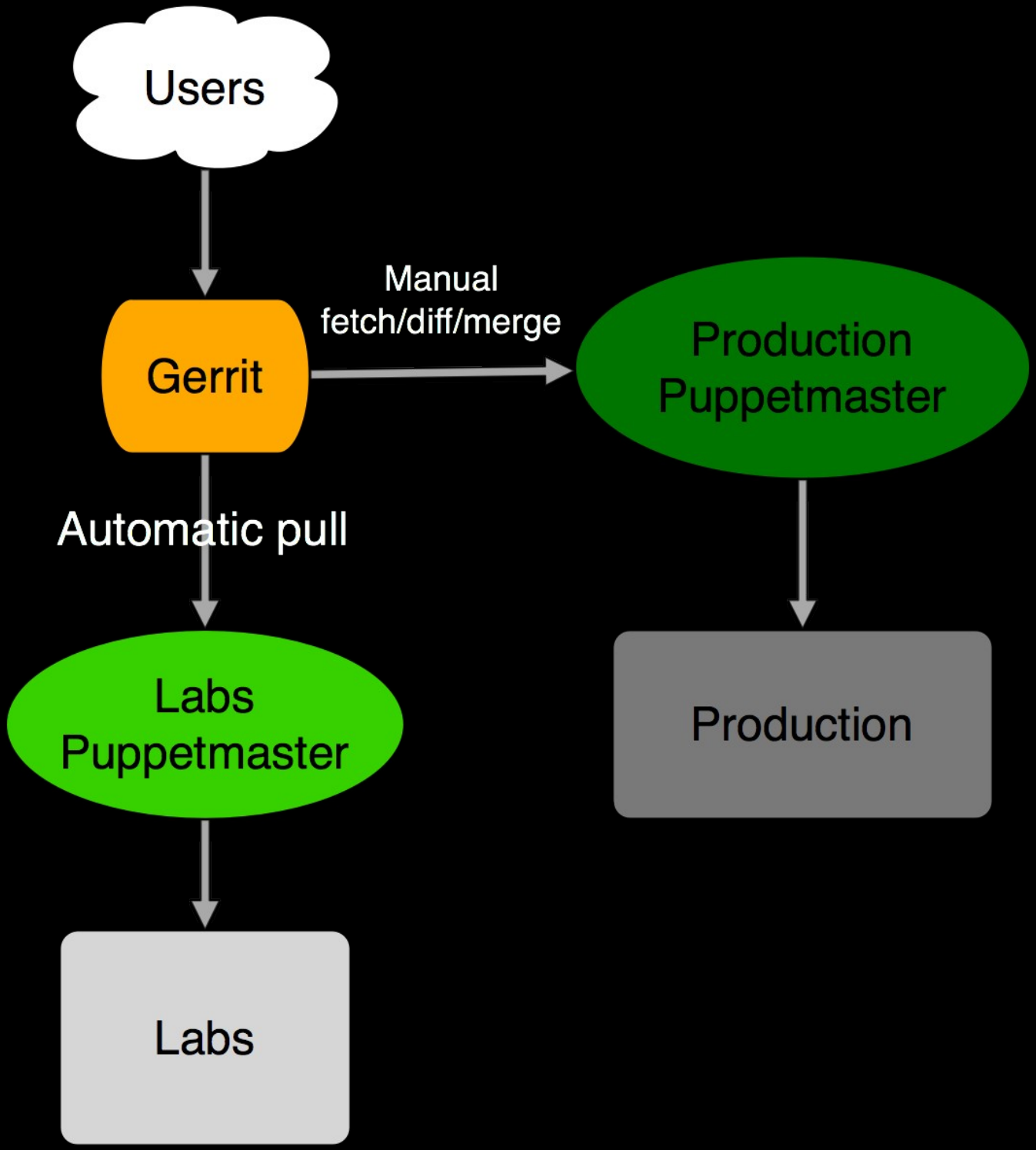
Run Labs from test branch



puppetmaster::self

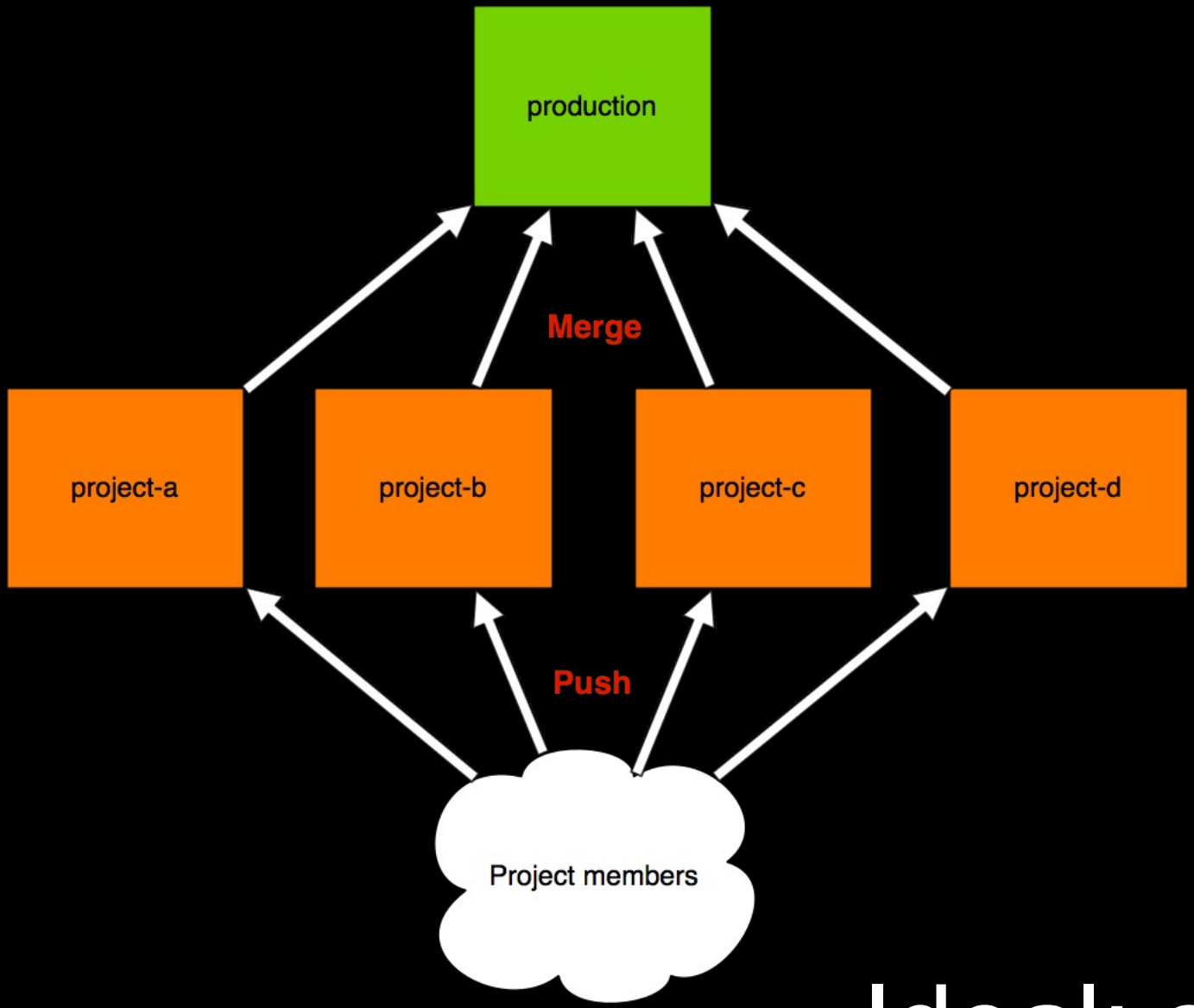


Modifying node definitions



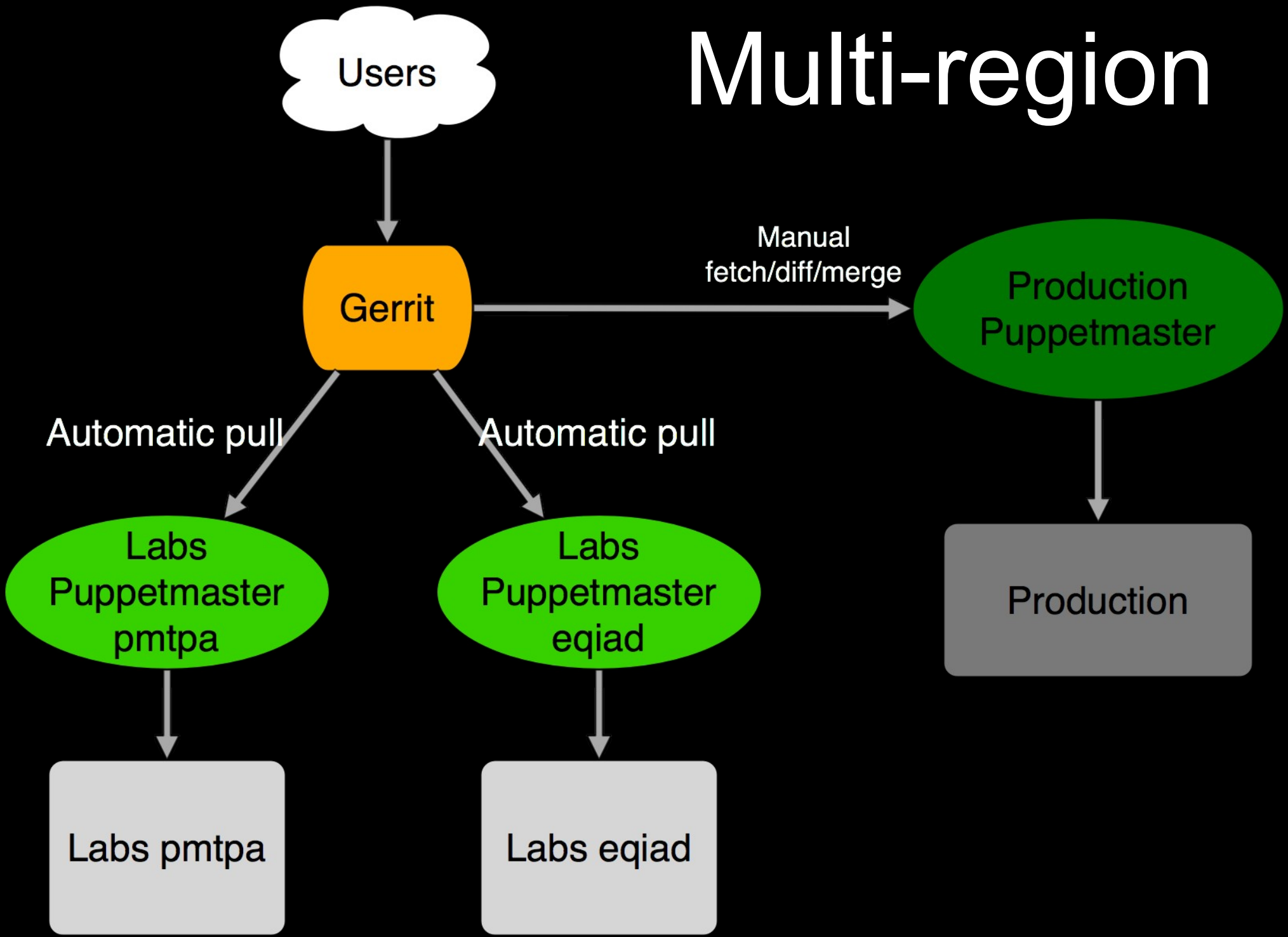
Updating masters

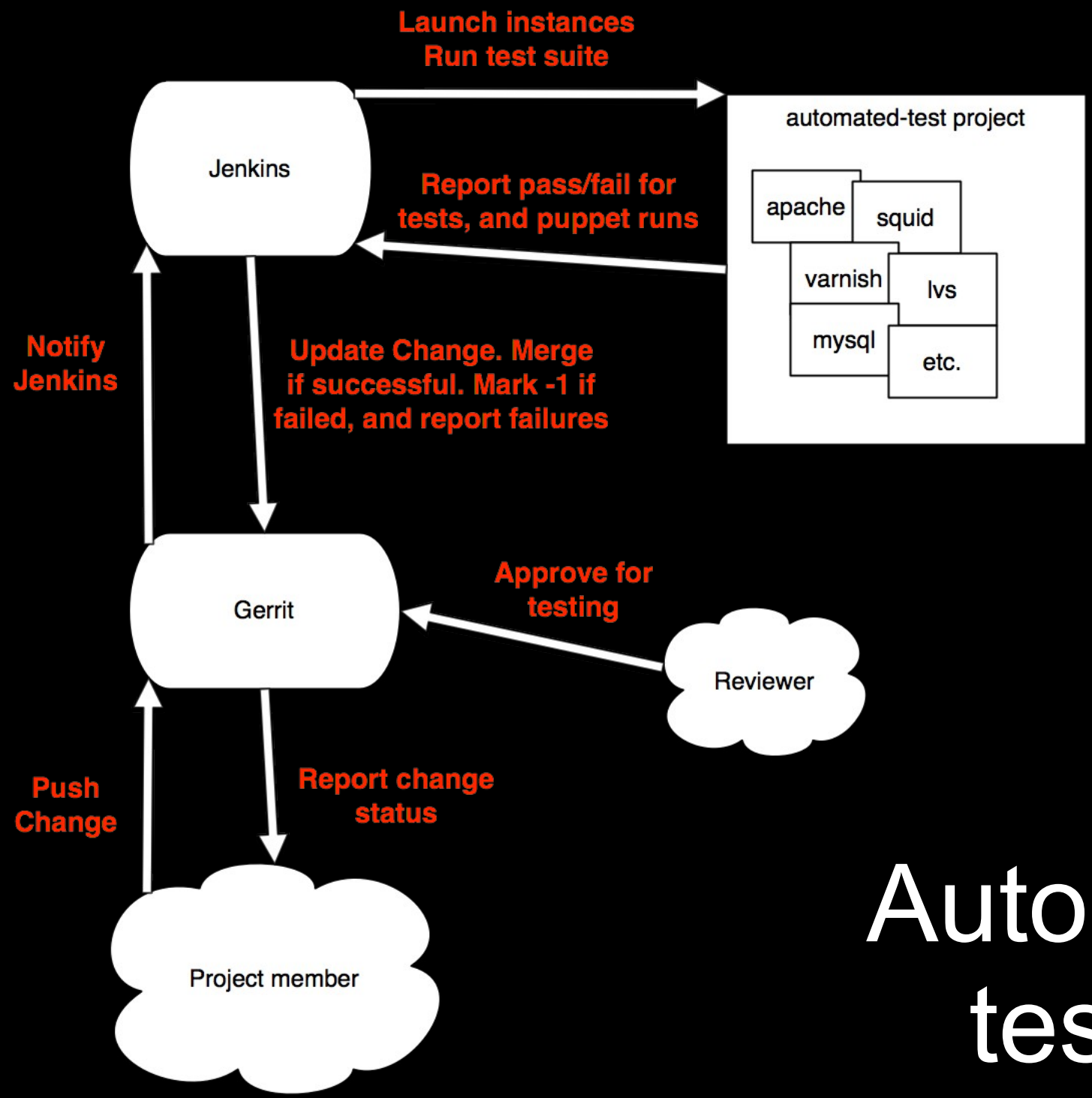
Future



Ideal: short-lived project branches

Multi-region





Automated testing

Get Involved!

- Help with development
- Help with operations
- Help with community

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IRC: Ryan_Lane on Freenode; channels:

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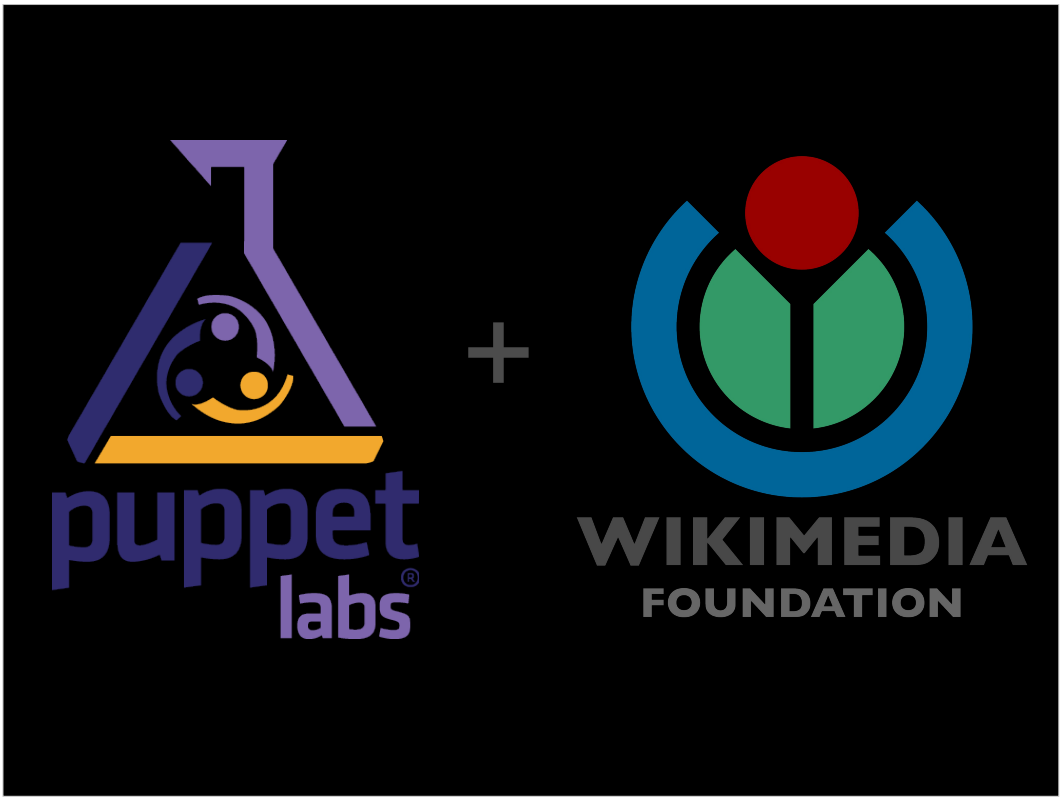
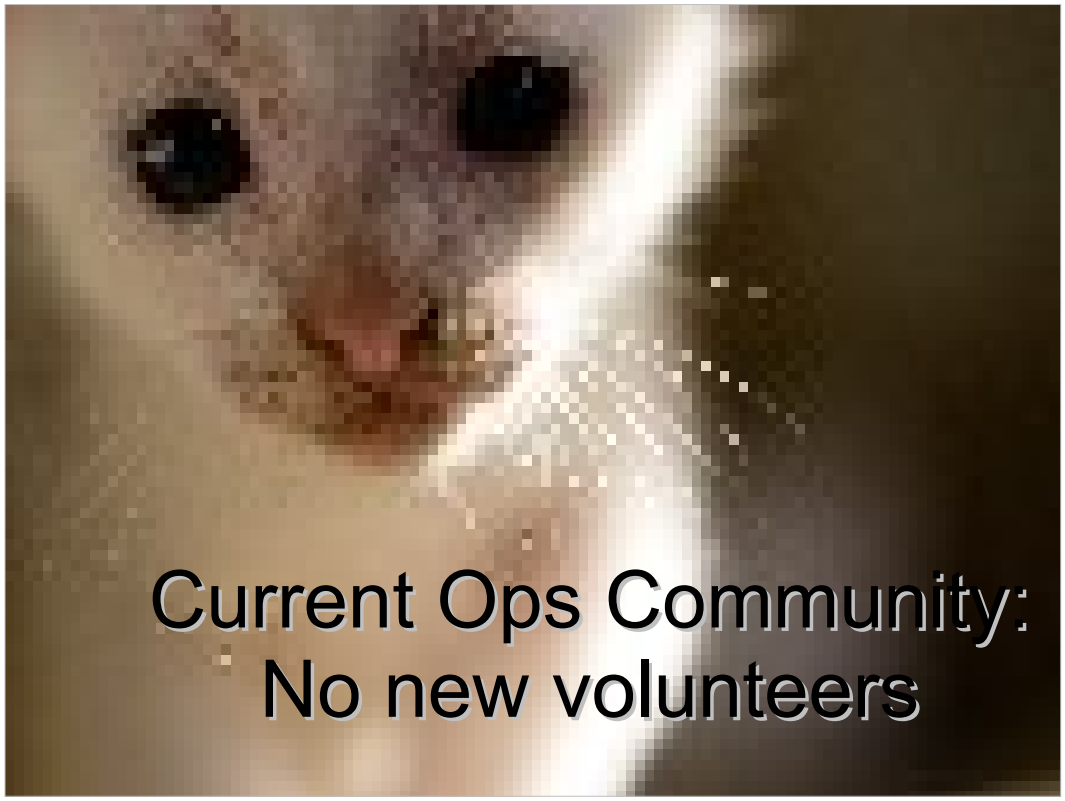
- #wikimedia-labs
- #wikimedia-tech
- #openstack
- #openstack-dev


puppet
labs
+
WIKIMEDIA
FOUNDATION

- When we started
  - Volunteers had root
  - Built the site and the software
  - Lenient access policy – lead to flexibility
  - Downtime wasn't considered as major an issue then



- Growth has made us wary of giving root or shell to volunteers
- Size makes us slower as changes are harder
- Lack of volunteers help makes us less flexible and slower

- This makes operations a bottleneck
  - Growth and speed of dev community is held back by operations
- Access policy makes it difficult for volunteers to understand how infrastructure works
- Also makes it hard to make changes that make it through code review

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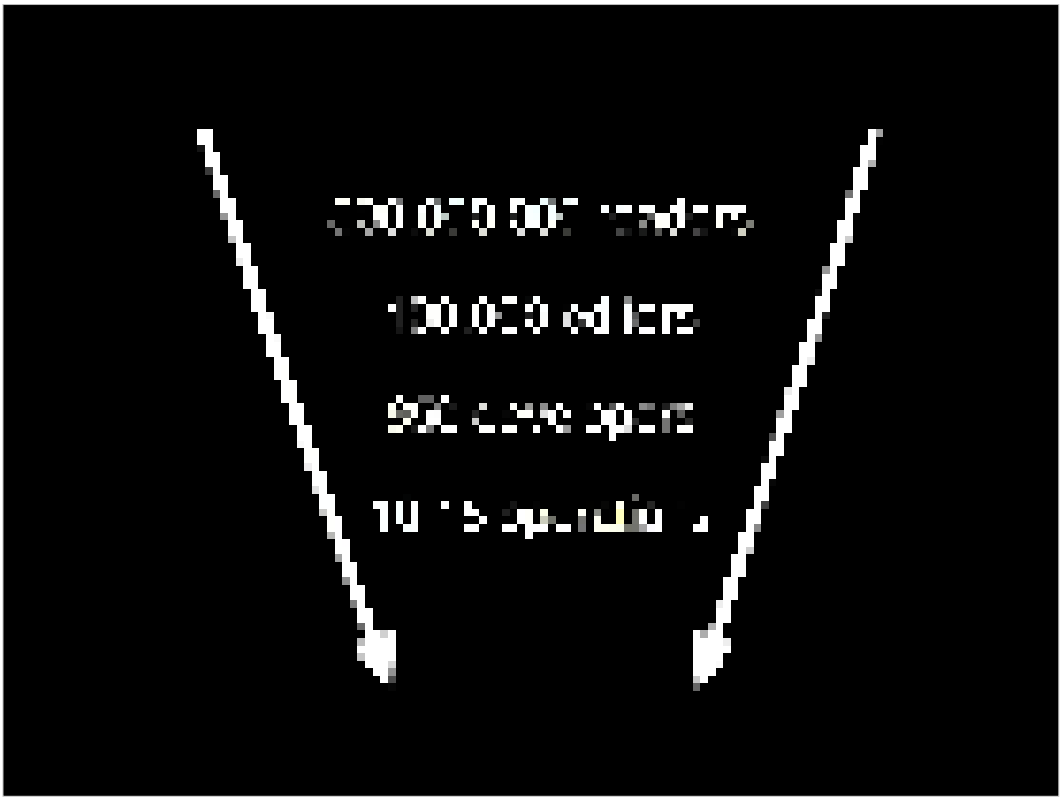


•Solution: open the infrastructure back up to volunteers

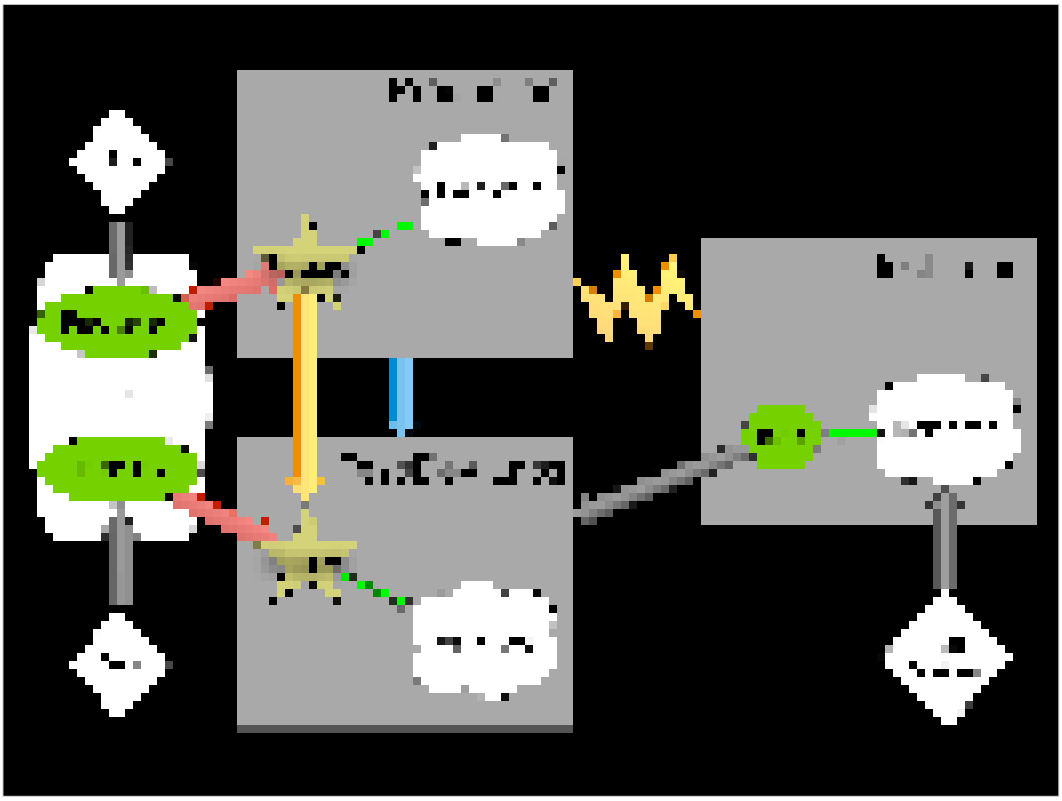
- Opening infrastructure development allows developers to bypass operations for common tasks
- Thanks to orchestration, configuration management, and cloud computing operations can work like a software project
- If we can treat operations like a software project, we can also treat it like an open source project
- Still have the same issues with access – must take a new approach

http://www.flickr.com/photos/nanoprobe67/5761031999/sizes/o/in/photostream/

Wikimedia Labs is a virtualized test, development, and semi-production environment for Wikimedia Foundation staff and for Wikimedia volunteers.

I have three main goals:

1. Improve collaboration between staff and volunteers for software development
2. Have a process for providing higher levels of access for people who are not on the paid operation team staff. This includes staff developers, and all volunteers. I'd like to have an environment where anyone can eventually become root, even on our production cluster.
3. I'd like to have an environment where we can test major changes before we deploy them to the live site. We currently have no test environment.



- Puppet configuration kept in gerrit repository
  - Two branches used
    - Production for production
    - Test for test
- Two development environments to act as a ramp
  - Tool labs, intended for very new developers
    - Bots
    - Tools
    - Researchers
  - Test/Dev labs, intended for developers and ops volunteers
- Changes pushed and tested in test
- Code reviewed, then cherry-picked to production, then deployed

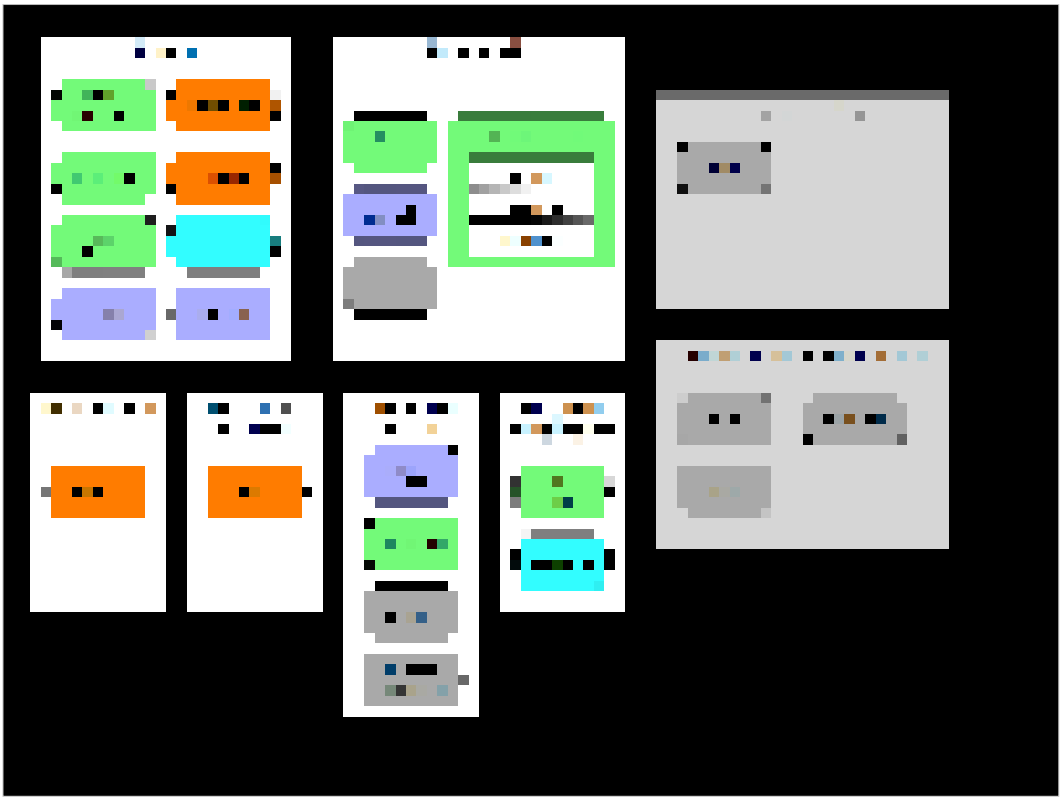
http://www.flickr.com/photos/canihazit/6624625449/

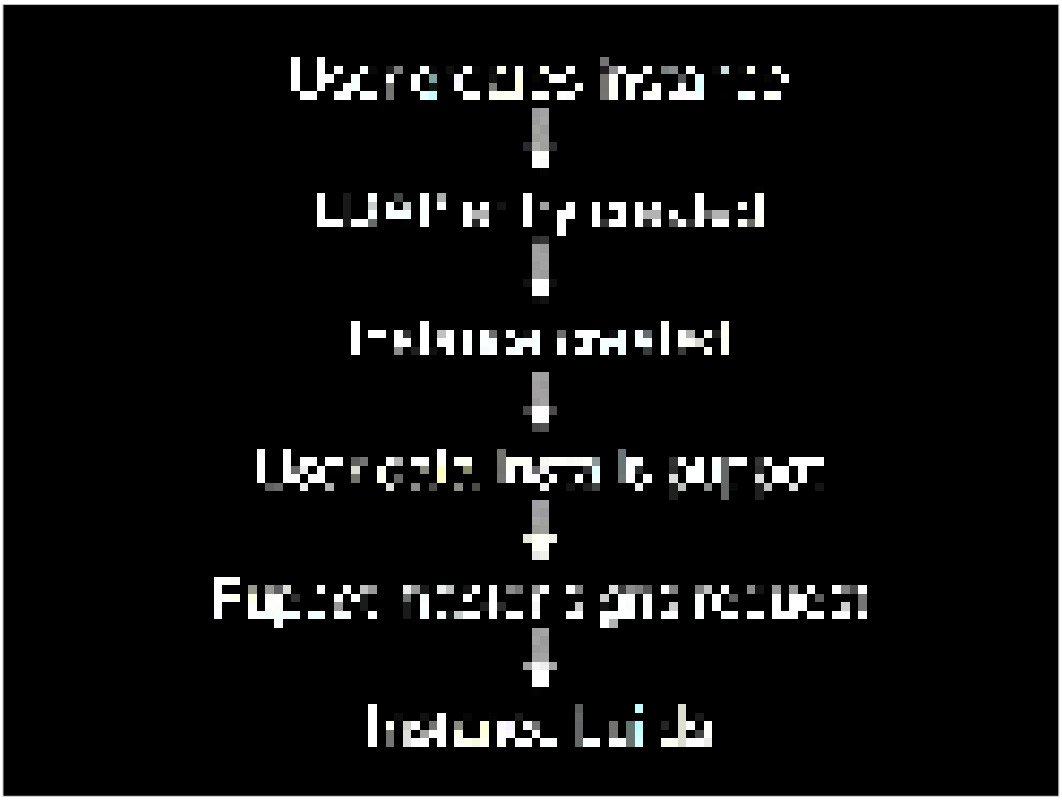
http://www.flickr.com/photos/gotosira/4699302559/

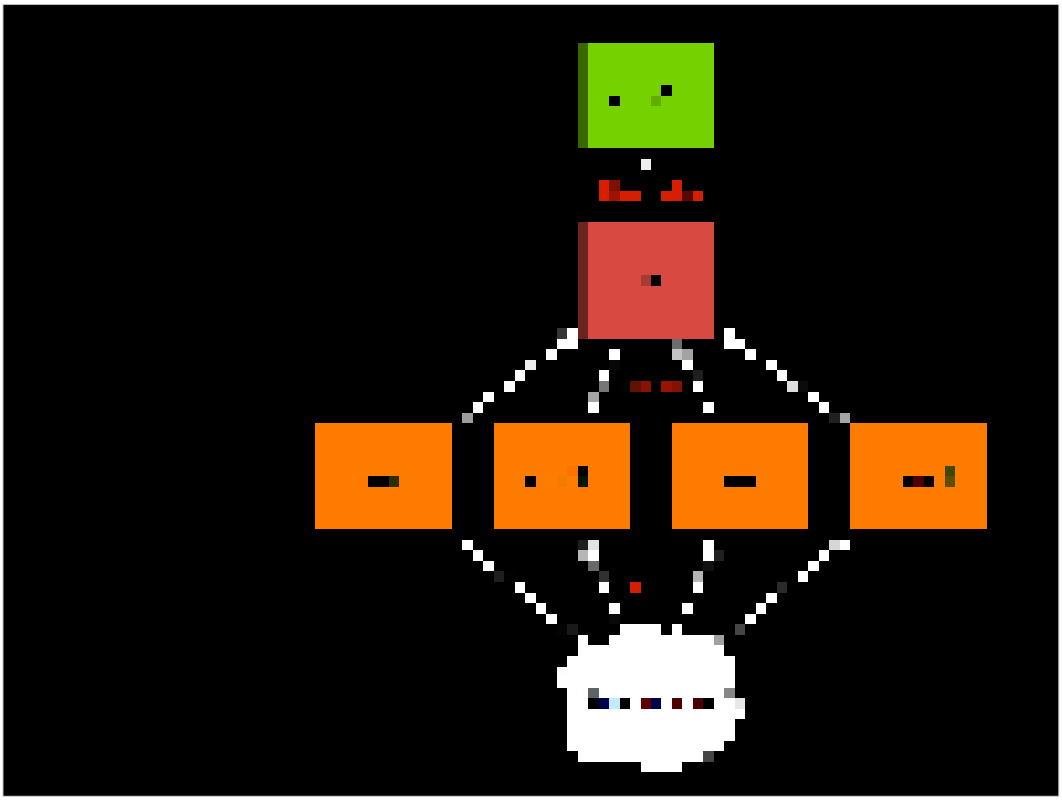
•First step: release our puppet configuration
- Never planned on this
- Spent weeks auditing configuration for sensitive things
- Almost released *.wikimedia.org private key

openstack

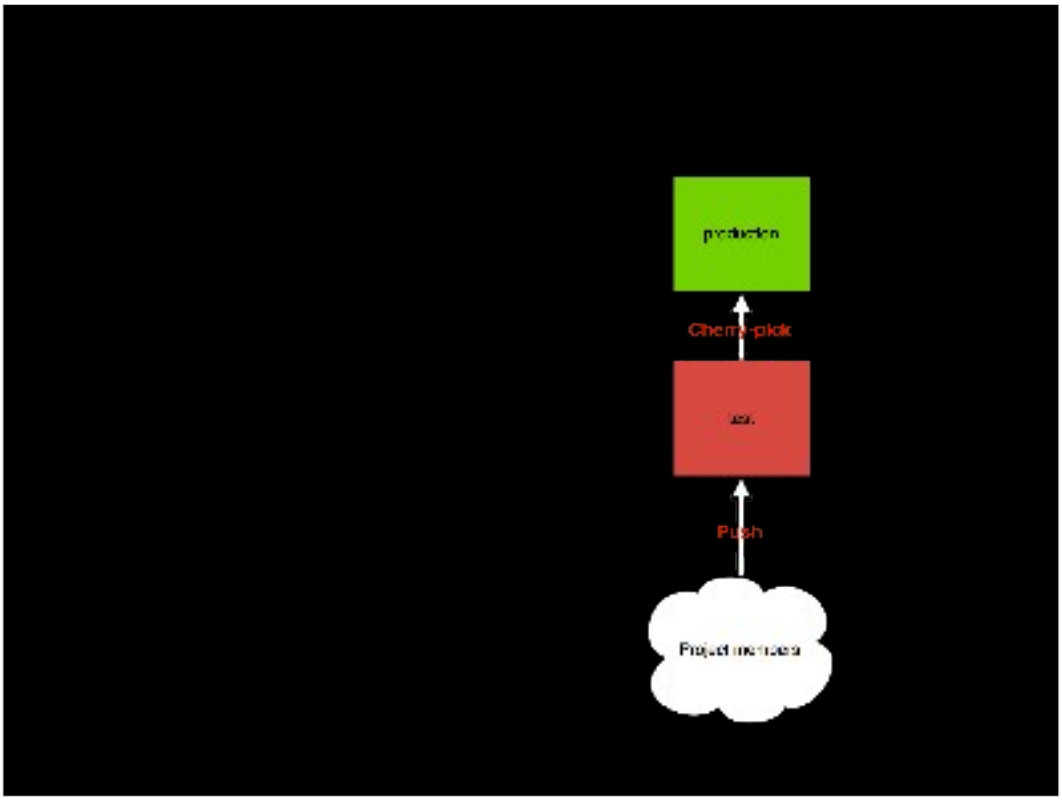
- We use nova projects as security separations between community maintained projects
  - Separation is very loose
  - Community controlled
  - Resources are shared per-project, not per instance
- Projects are global or specific
- Projects extended as posix security groups
  - Can manage permissions in global projects using specific projects

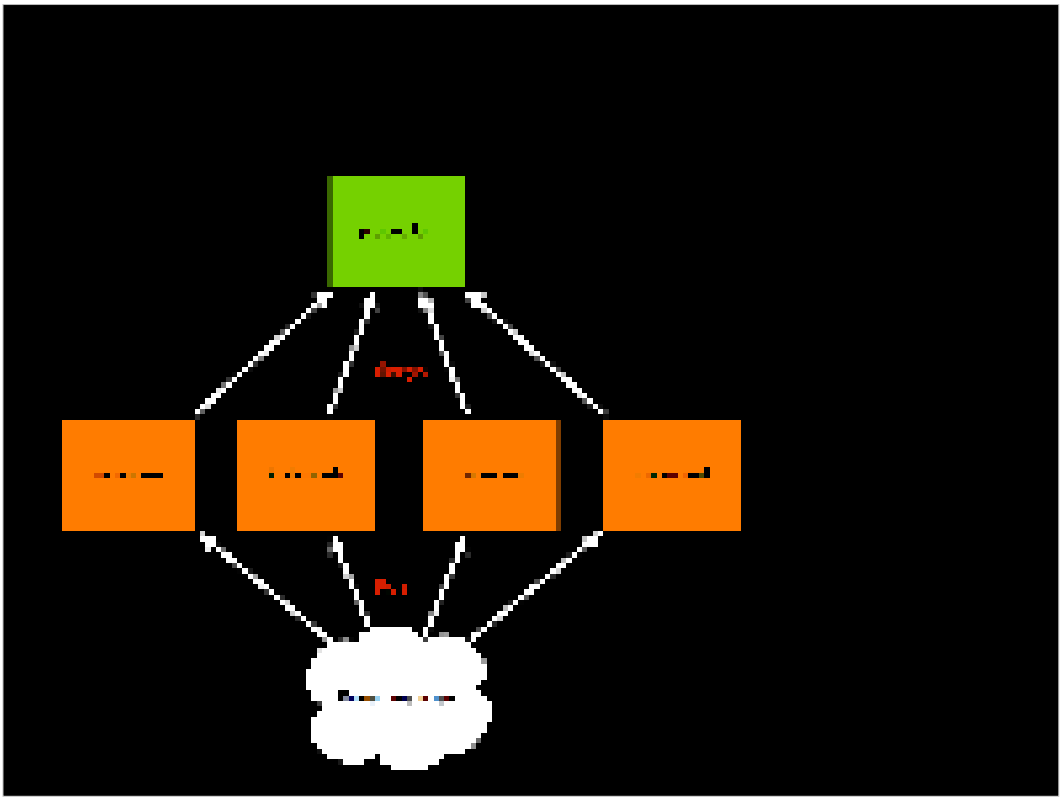


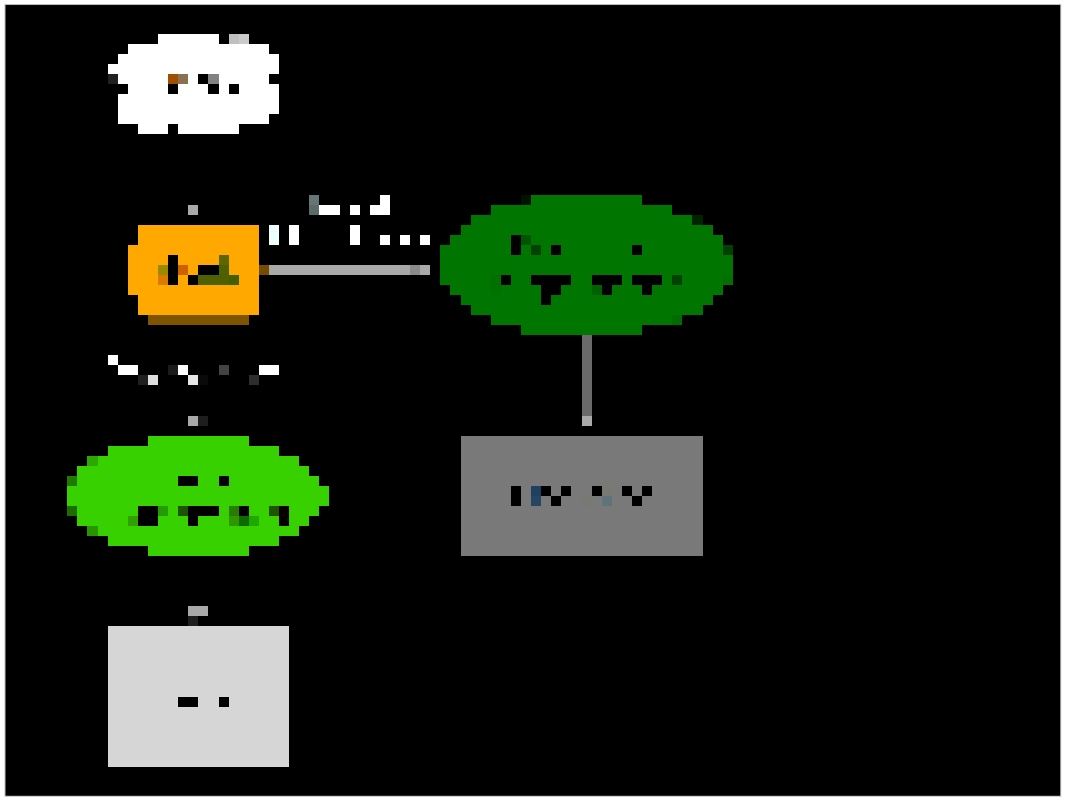


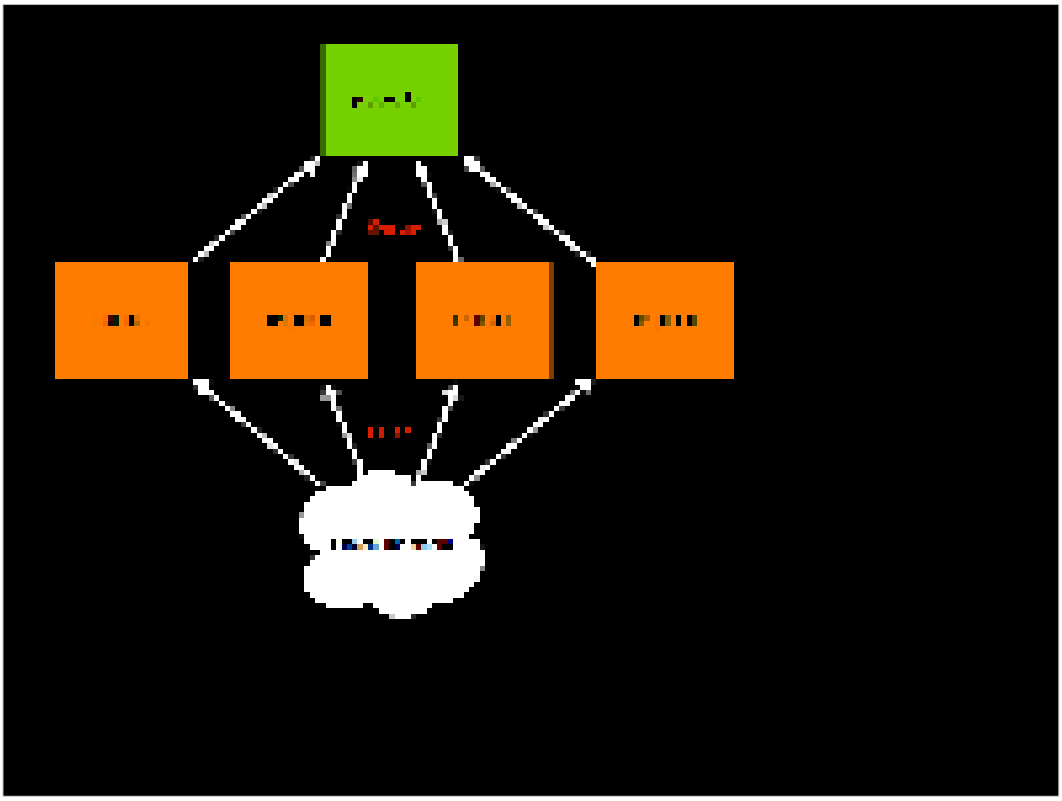


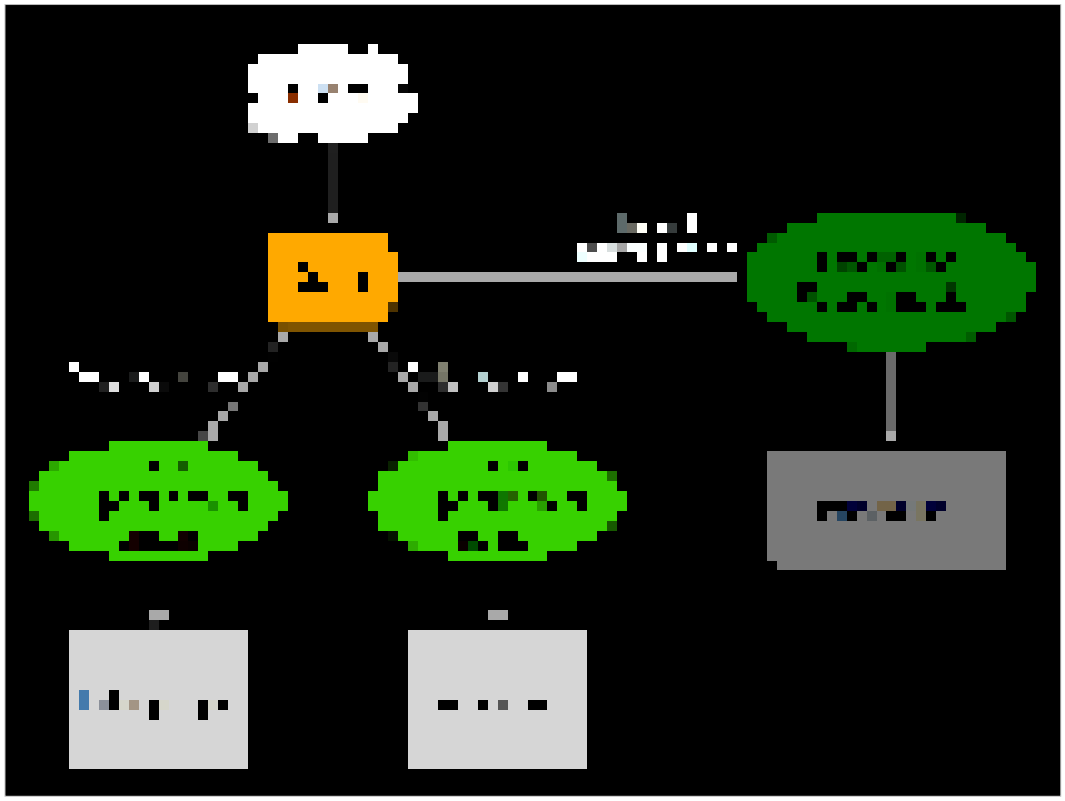
- Initial concept for moving changes from test to production was flawed. Too hard to test changes.
- Changed concept to make this easier
  - Every project gets a branch
  - Project members can switch between test and project branch
  - Can implement and test using project branch, and then merge changes to test branch
  - Test branch can be used to test changes in production clone before merging to production and deploying

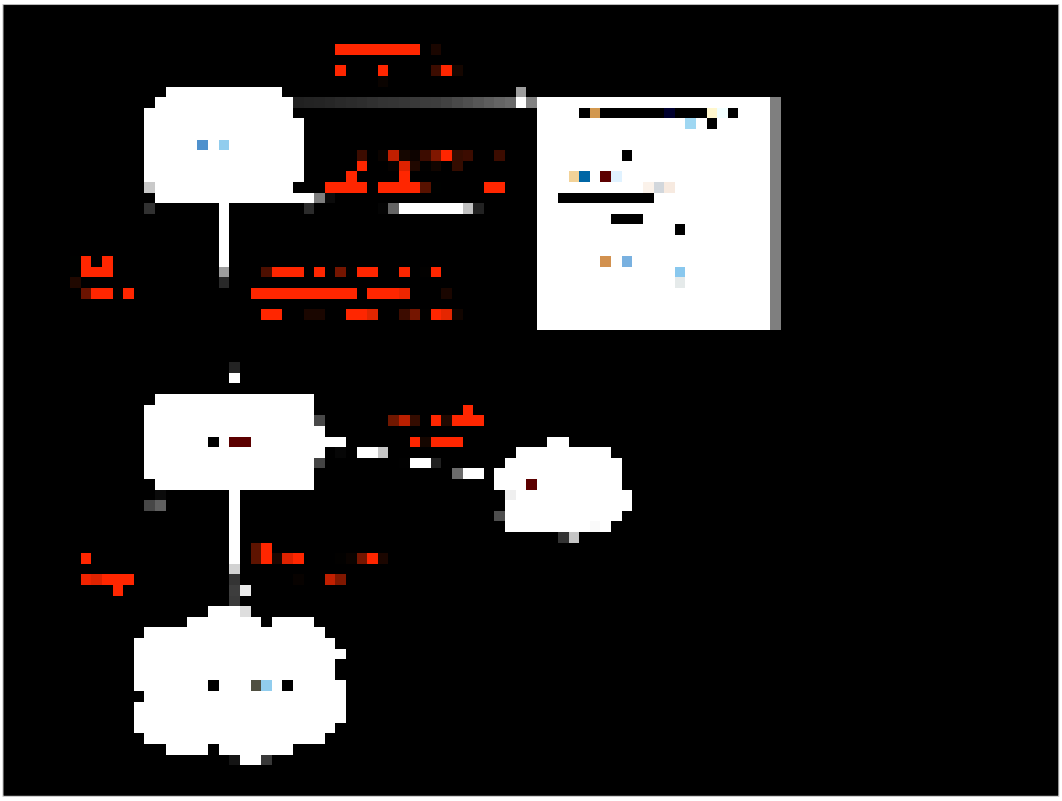

production
Cherry-pick
Push

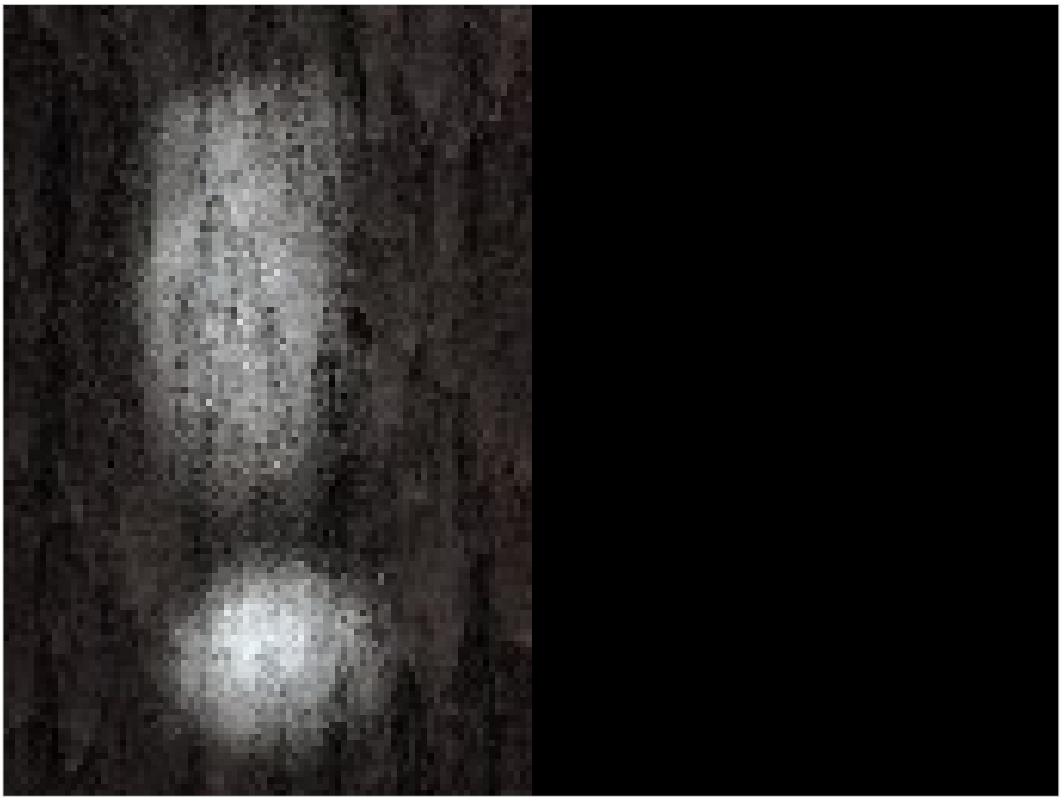












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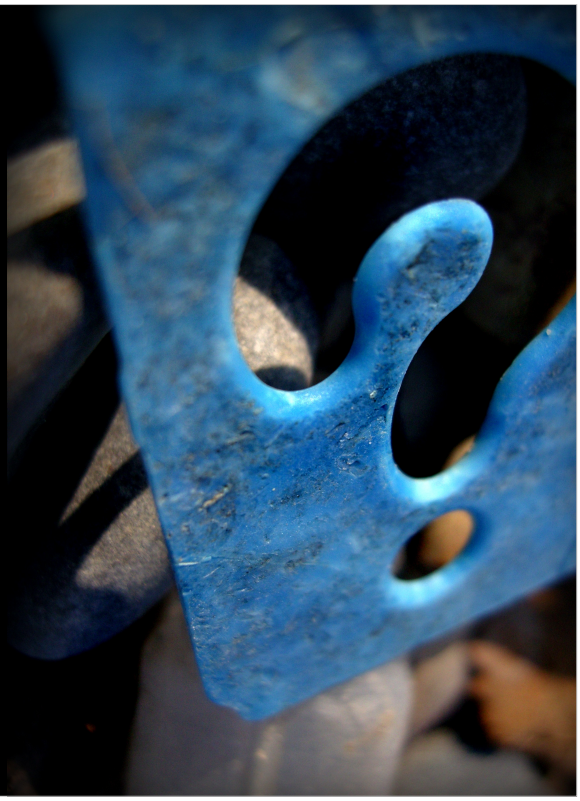

Please don't hesitate to contact me. I'm very active on IRC, and would love to talk to you.