



24 MONTHS

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@INFOXCHANGE

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A NOT-FOR-PROFIT COMMUNITY
ORGANISATION THAT DELIVERS
TECHNOLOGY FOR SOCIAL JUSTICE

TECHNOLOGIES

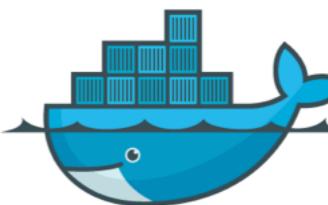


NGINX



PostgreSQL

the world's most advanced open source database



docker



Spatial PostgreSQL

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2012

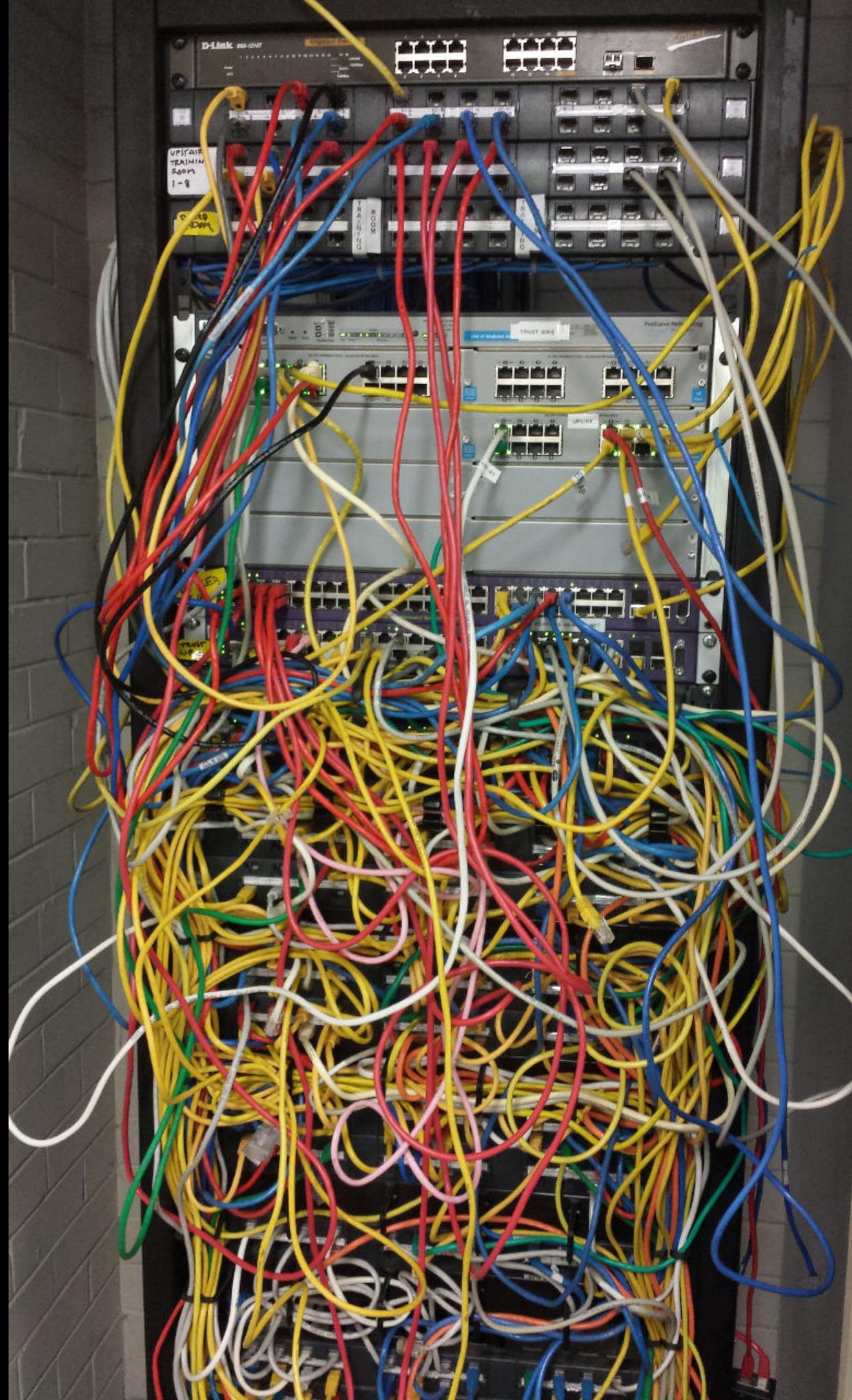


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OPERATIONS TEAM 2012

We were in a bad place

INFRASTRUCTURE

- 6+ Year old servers
- 6+ Brands of network switches
- 'Core routers' = Desktop computers
- *Partially puppetted* Infrastructure
- Many 'legacy' servers
- More SPOF than you could dream up



APPLICATION DEPLOYMENTS

Major applications only deployed monthly at most

Large, complex deployments with many changes

No form of continuous integration or delivery

Releases were fragile & high risk

CULTURE

- Change Adverse
- Witch Hunting
- Blame
- Negativity
- A lot of Ass-Covering

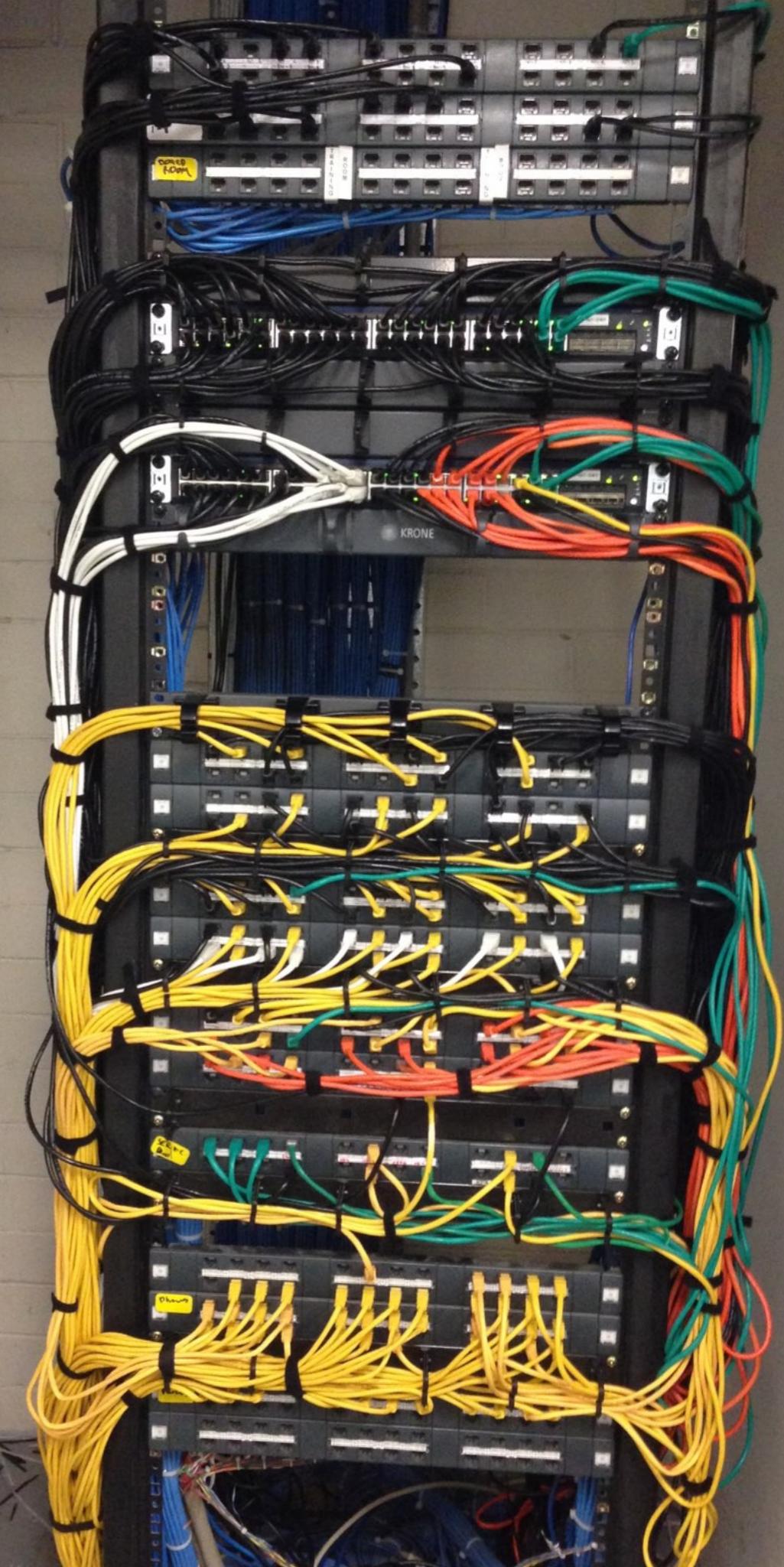
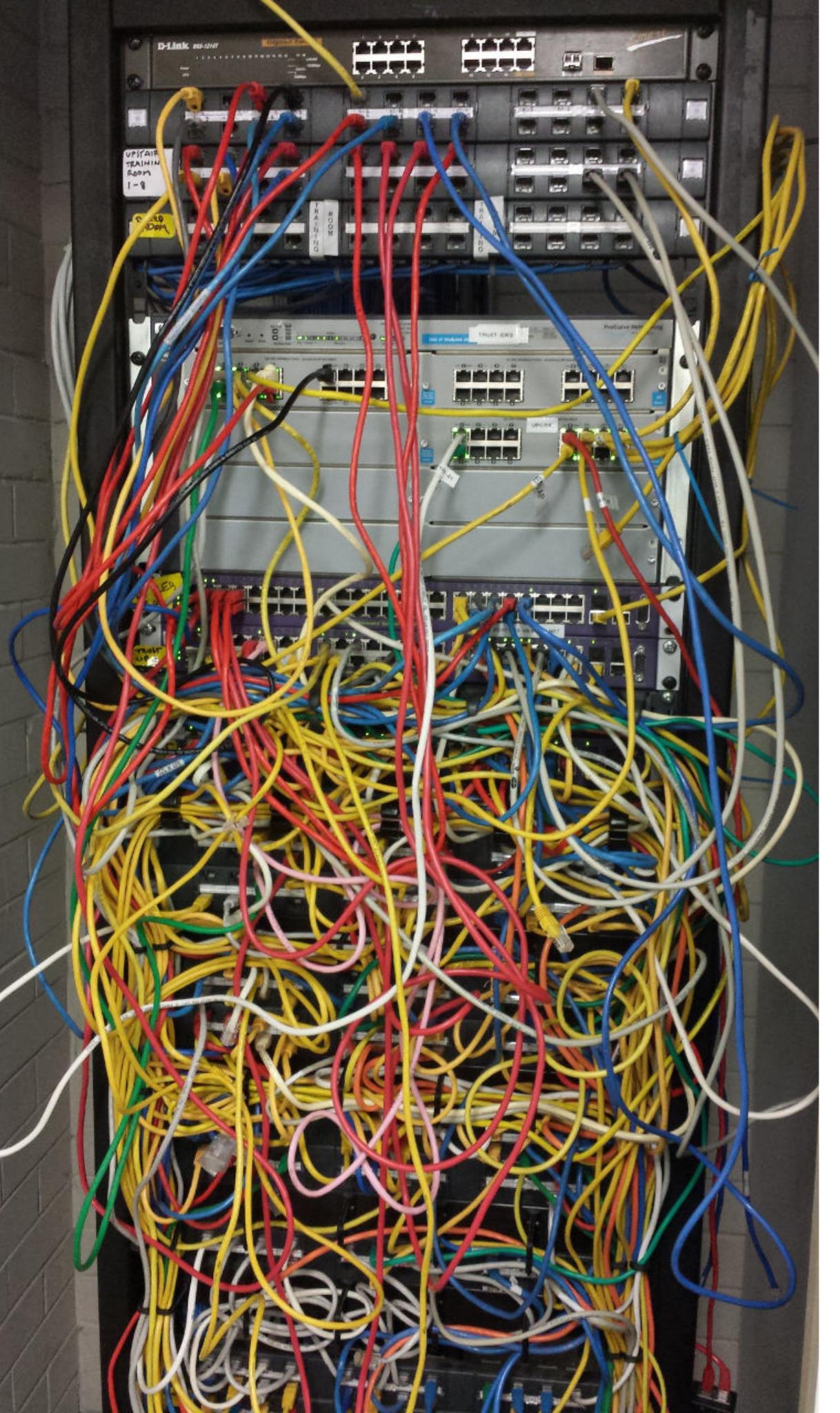




I almost quit on my first week

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2014



PLATFORM INFRASTRUCTURE

- In-house "PaaS" for our applications
- Almost all applications containerised in Docker
- Modern and supportable hardware platform & fault tolerant network redesign
- Every server (300~) is puppet controlled
- Excellent visibility into operational state

APPLICATION DEPLOYMENTS

- Docker images built and deployed by CI
- *Prod app images == test app images*
- Devs release to prod
- Up to 32 successful deployments to prod per day

CULTURE

- Dev & Ops teams together facilitate product delivery
- Ops involved in application architecture
- Devs involved in platform architecture
- No more 'It worked in Dev'

HOW DID WE DO IT?

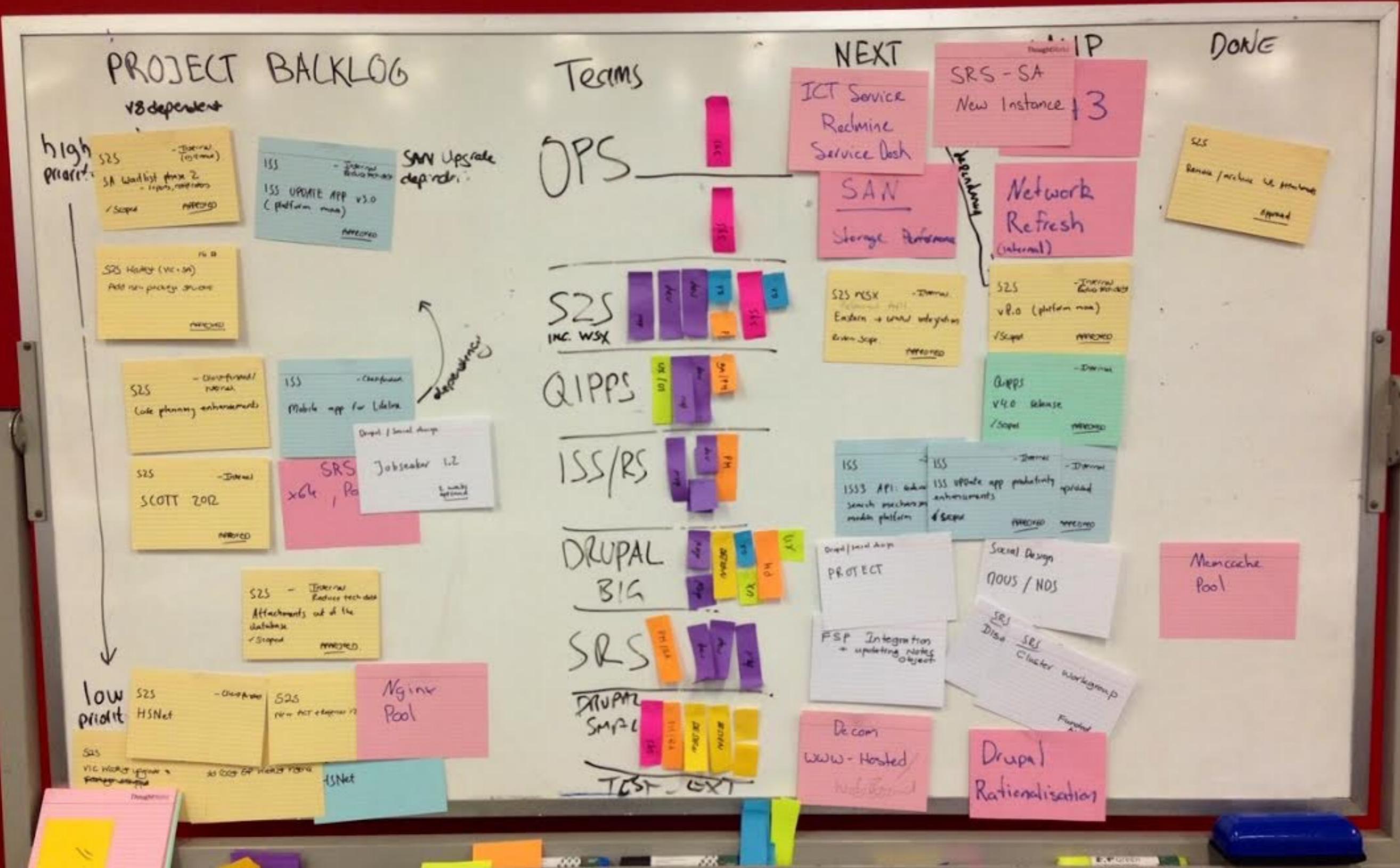
“Easy things should be easy, and hard things
should be possible.”

-LARRY WALL

WE KNEW OUR DESIRED STATE

- Eliminate all *current* technical debt
- Increase operational supportability
- Increase operation and deployment resiliency
- Recover from failure quicker
- Stop fighting fires
- The ability to perform 10+ production deploys a day of any application

Pick highly visible & easy to achieve changes first



PAY DOWN TECH DEBT

- It's hard to eliminate tech debt but it MUST be brought under control to reduce reactive work
- P2V your physicals
- chroot anything you can't modernise & puppet the underlying OS
- Set hard sunset dates & communicate them
- Demonstrate & praise modern environments

The journey from here



to here

A screenshot of a web browser displaying the HSNet service directory. The URL is https://www2.hsonet.nsw.gov.au/services/service/557343. The page title is "Arabic Language Classes". The service details include:

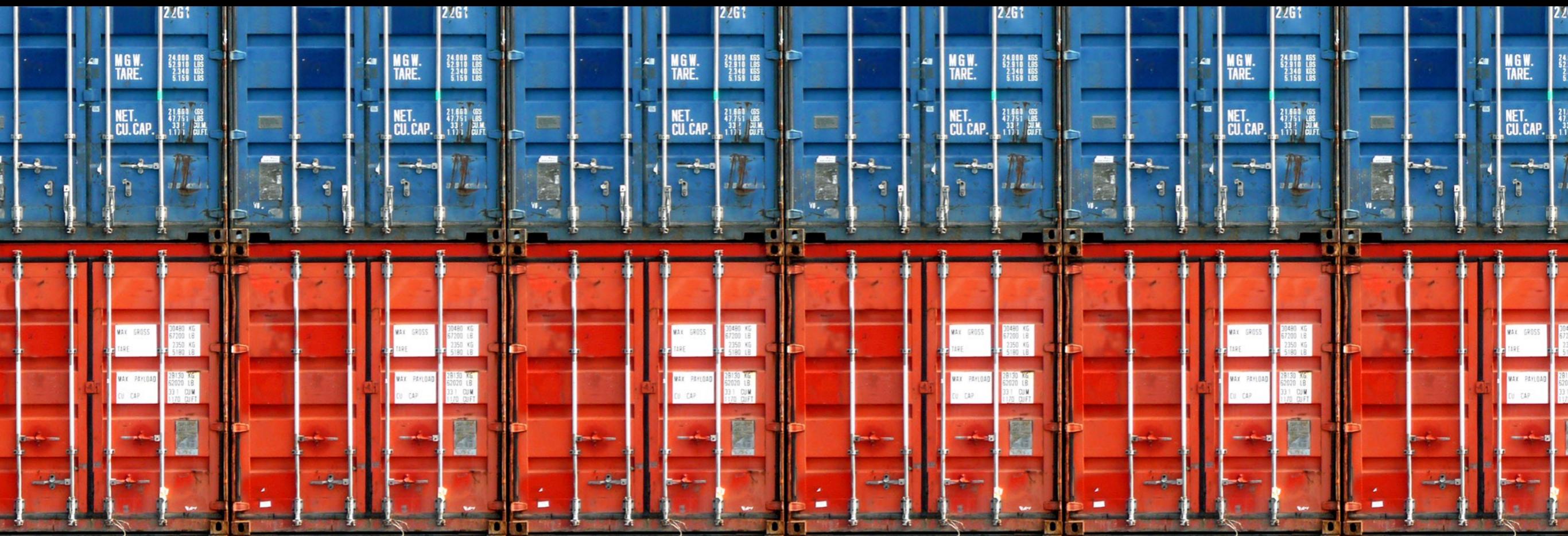
- Organisation Name: Lebanese Moslem Association
- Site Name: Lebanese Moslem Association Language Classes, Liverpool
- Description: Community classes in Arabic language and Islamic culture are available for children & adolescents 5 to 18.
- Availability: 9.30am to 1.30pm, Saturdays.
- Cost: Modest fees apply
- Referral: Self.
- Intake Information: Self referral; availability, 9.30am to 1.30pm, Sat
- Spoken Languages: English, Arabic
- Funding Body: Self-funding

A "Report an Error" button is also present. To the right of the service details is a map of the Sydney metropolitan area with several location markers. A callout box on the map indicates a distance of 686 km from the service location to the marker. The map shows various suburbs and landmarks across the city and surrounding areas.

is important

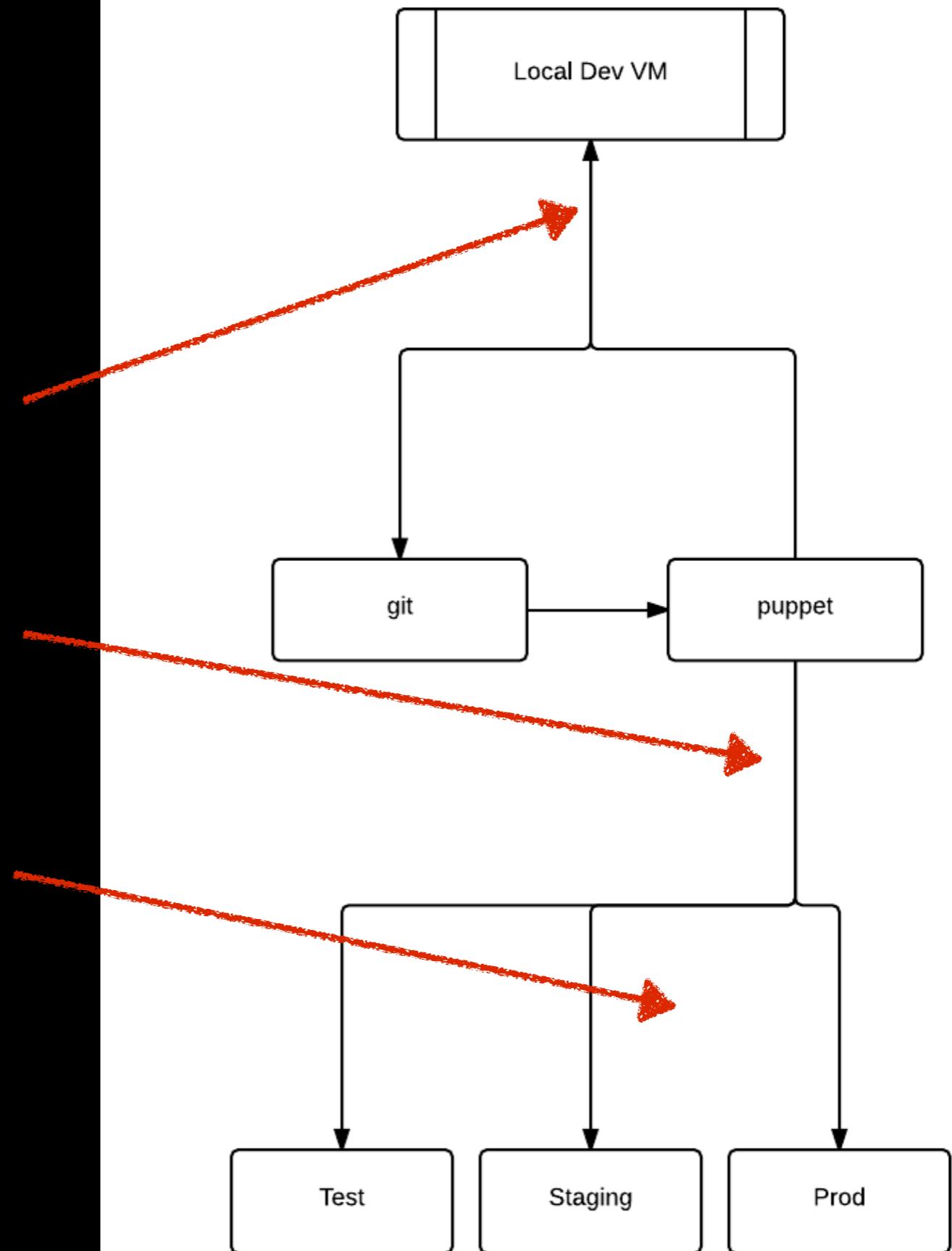


We had to make it easy to do the right thing

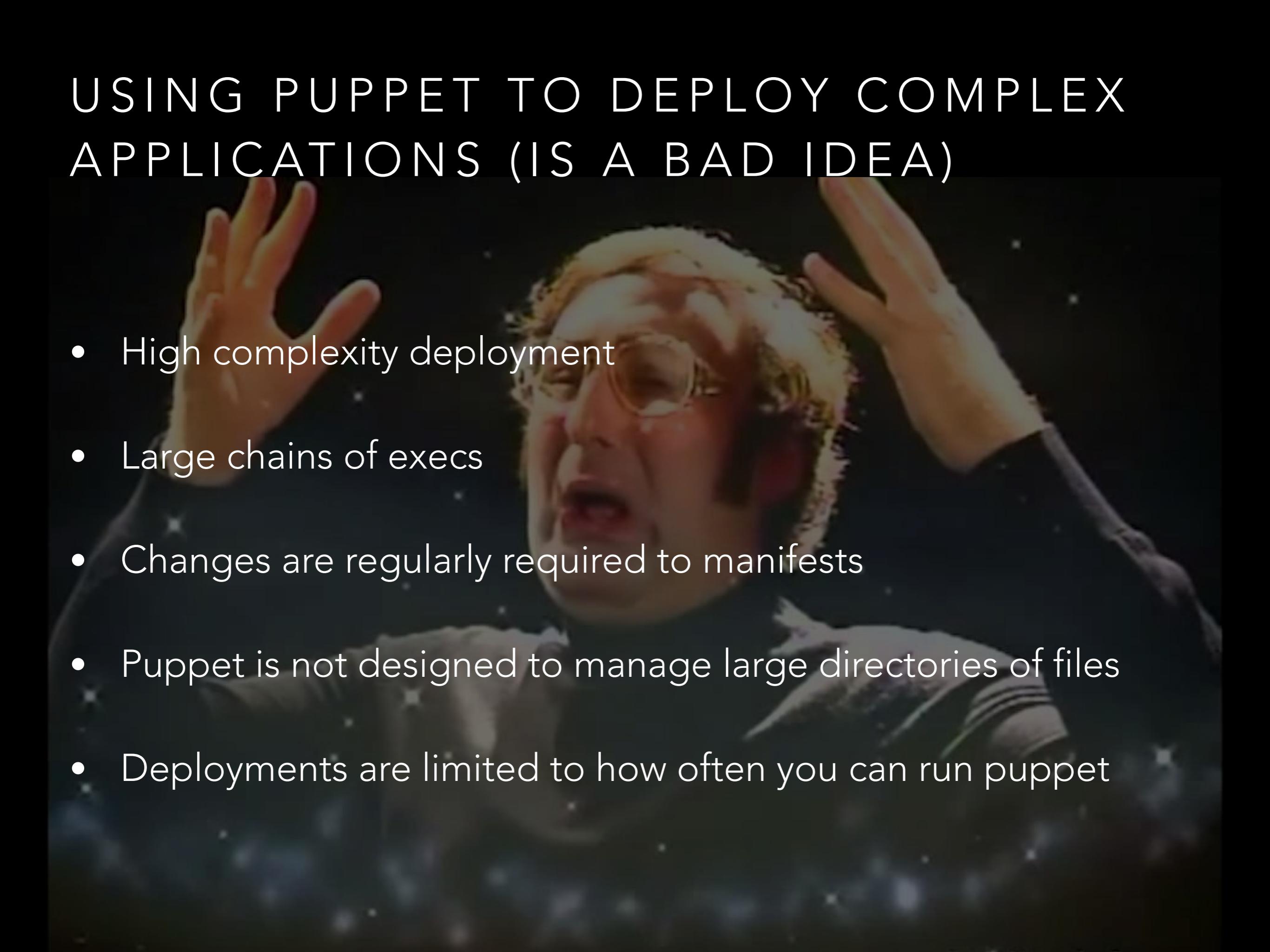


2012 Release Process

- Dev VMs often out of sync with puppet
- External package repos often broken
- Devs didn't have visibility into deployment processes
- Ops needed to be involved in every deployment



USING PUPPET TO DEPLOY COMPLEX APPLICATIONS (IS A BAD IDEA)

A photograph of a person in a full space suit, including a helmet with a reflective visor, floating in the dark void of space. The person is looking upwards towards the planet Earth, which is visible in the background, showing its blue oceans and green continents. The lighting is dramatic, with the bright light of Earth illuminating the suit and the surrounding space.

- High complexity deployment
- Large chains of execs
- Changes are regularly required to manifests
- Puppet is not designed to manage large directories of files
- Deployments are limited to how often you can run puppet

2014 Release Process

1. Code pushed to git

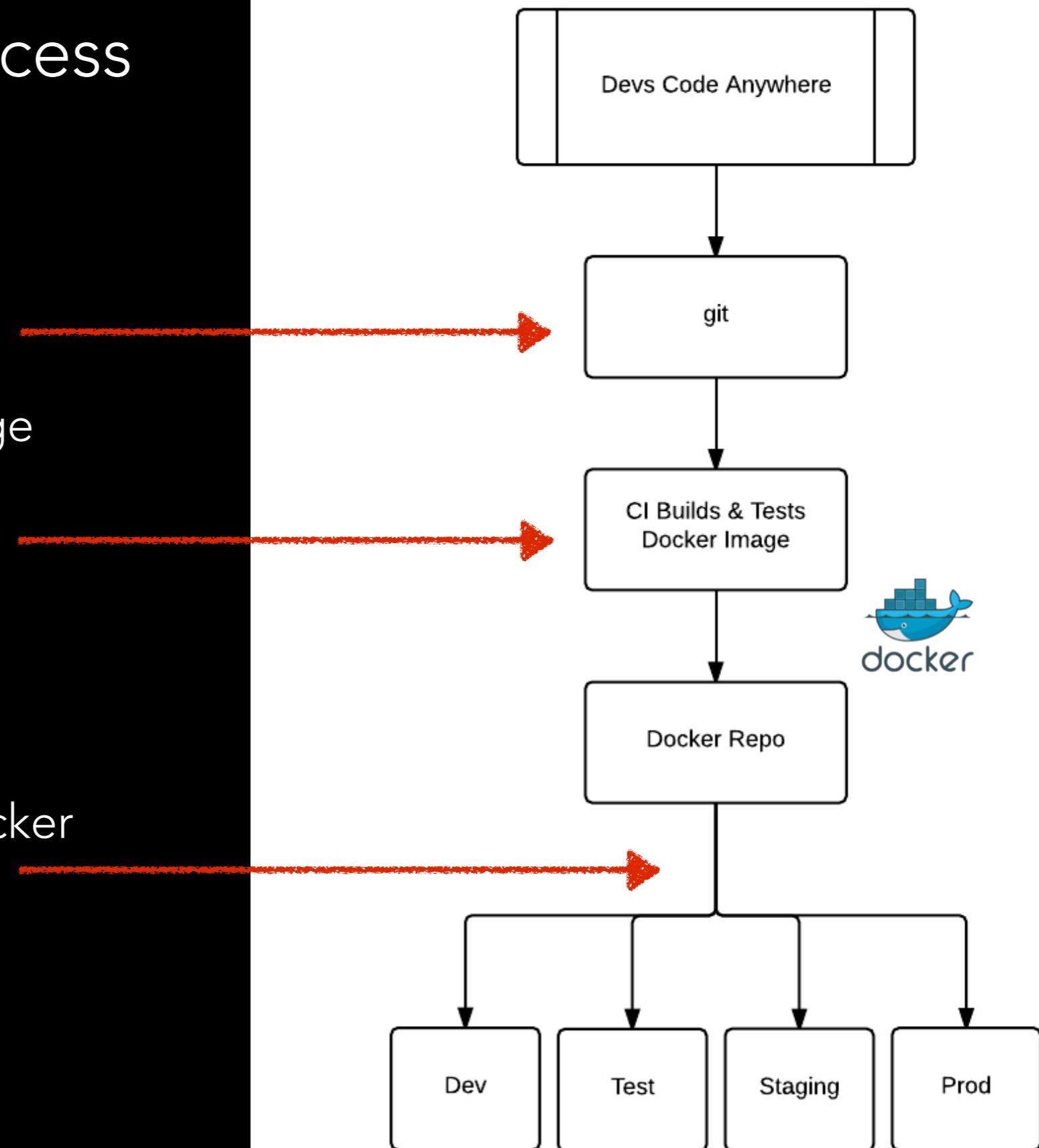
2. CI builds Docker image

3. Tests run

4. MCollective triggers

Puppet to deploy Docker

image



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Firefighting to a minimum

Deploys to a maximum

Happy Devs, Happy Ops

LESSONS

- Know when to start fresh - Hindsight is 20/20
- Fail forward and aim to fail fast - It's often cheaper
- Communication is key - Start DevOps lunches!
- Management must buy in - Make them read The Phoenix Project

"Here's the secret. I'll tell you EXACTLY what devops means.

Devops means giving a shit about your job enough to not pass the buck. Devops means giving a shit about your job enough to want to learn all the parts and not just your little world.

Developers need to understand infrastructure.
Operations people need to understand code.
People need to fucking work with each other and
not just occupy space next to each other.."

-JOHN VINCENT



QUESTIONS?

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