The Five Phases of DevOps

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Why The Five Phases of DevOps?

- Making a big shift to a DevOps culture can be daunting challenge
- Changing core fundamental processes in an organization can be seen as grief
- Organizations should incorporate DevOps in their own natural and holistic manner

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Phase One

Denial

Some things to watch out for

- × “Everything is fine…” despite the fact that it is not.
- × You may see attempts to establish an “automation culture”
- × There is a problem? “Toss more engineers at it!”

What does DevOps mean?

- Take the time early to define what DevOps means for not only yourself but also your organization.
- DevOps == Automation...Right?
  - Not Quite...
- DevOps is not just a team, it is a complete culture shift that spans multiple teams
  - Busting Silos
  - Empower Developers
  - Automate and support other teams to do the same

Busting Silos

Make deployments go from...

...to this!

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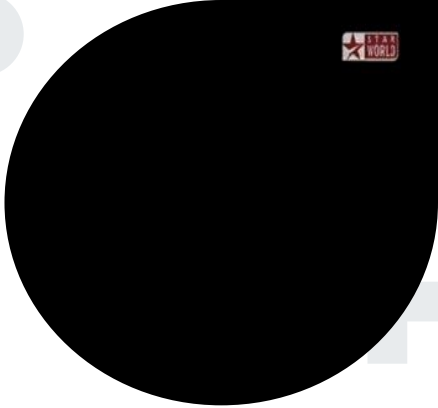
Eliminate Yak Shaving



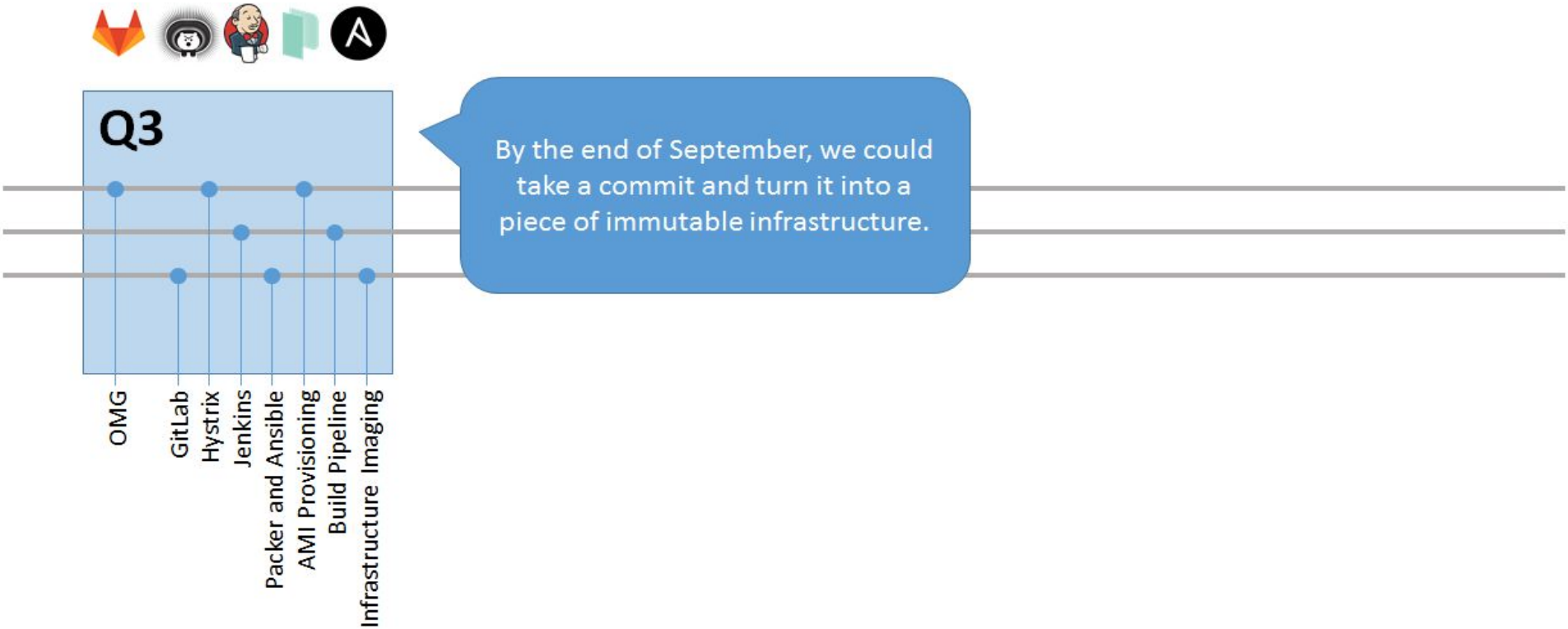
“You're probably shaving yaks at work all the time and don't realize it.

Yak shaving is what happens when you're doing some stupid, fiddly little task that bears no obvious relationship to what you're supposed to be working on, but yet a chain of twelve causal relations links what you're doing to the original meta-task.”

Have a well defined mission statement

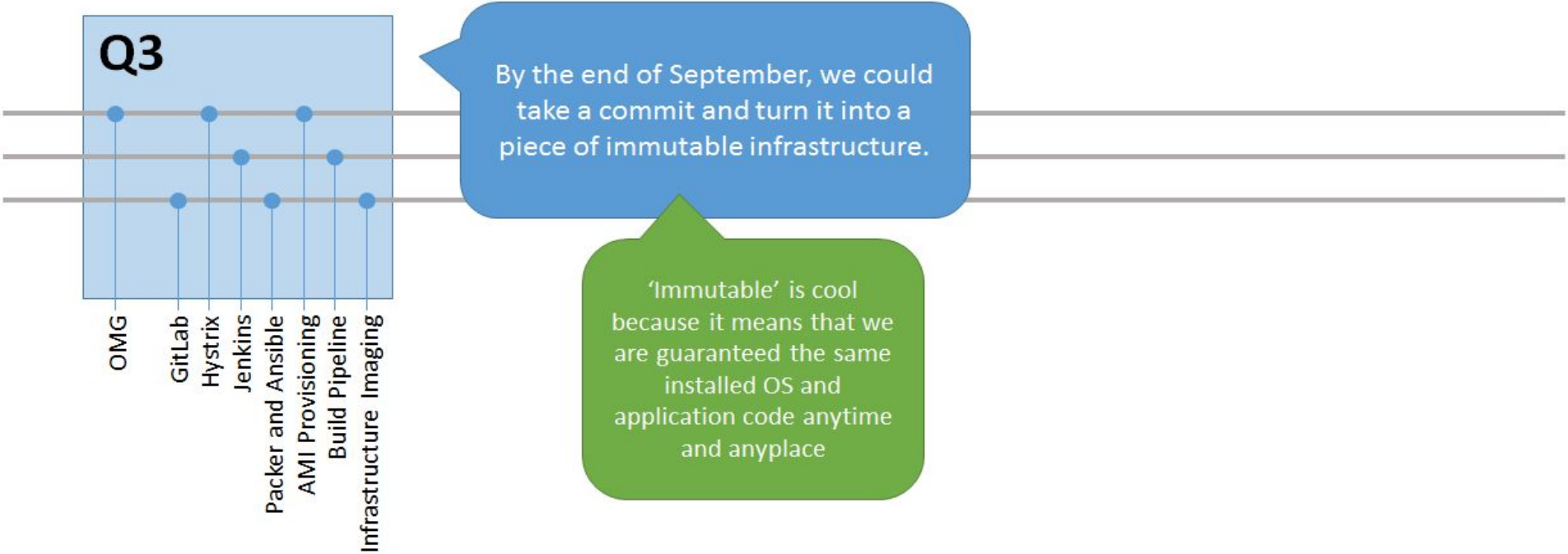
- Use this mission statement to drive your choices and answer tough questions

- A great place to start is to:
  - “Empower your developers”
- Ask yourselves:
  - “Will this proposed solution, implementation, or tool will help make your development team's lives easier?”



How did we do this?

Phase 1: Denial


Q3
OMG
GitLab
Hystrix
Jenkins
Packer and Ansible
AMI Provisioning
Build Pipeline
Infrastructure Imaging
By the end of September, we could take a commit and turn it into a piece of immutable infrastructure.
'Immutable' is cool because it means that we are guaranteed the same installed OS and application code anytime and anyplace

Phase Two

Fear/Doubt

Common Fears

- Fear of changing process due to things “always having been done this way”
- Fear of potential failure or making things worse
- Fear of the unknown…some ask what does DevOps mean for me?

Doubt with DevOps

- This is your build and deployment pipeline phase.
- During this phase, folks (even folks on DevOps) will have questions:
  - Are we doing this right; is everything perfect?
  - How can you be sure it's 100% going to work?
- The short answer?
  - It's not perfect and it will never will be; that's OK!
  - Just make sure you have ability to improve in the future

Start Small; Set Standards

- Don’t try to support too many projects at once...especially as you are maturing

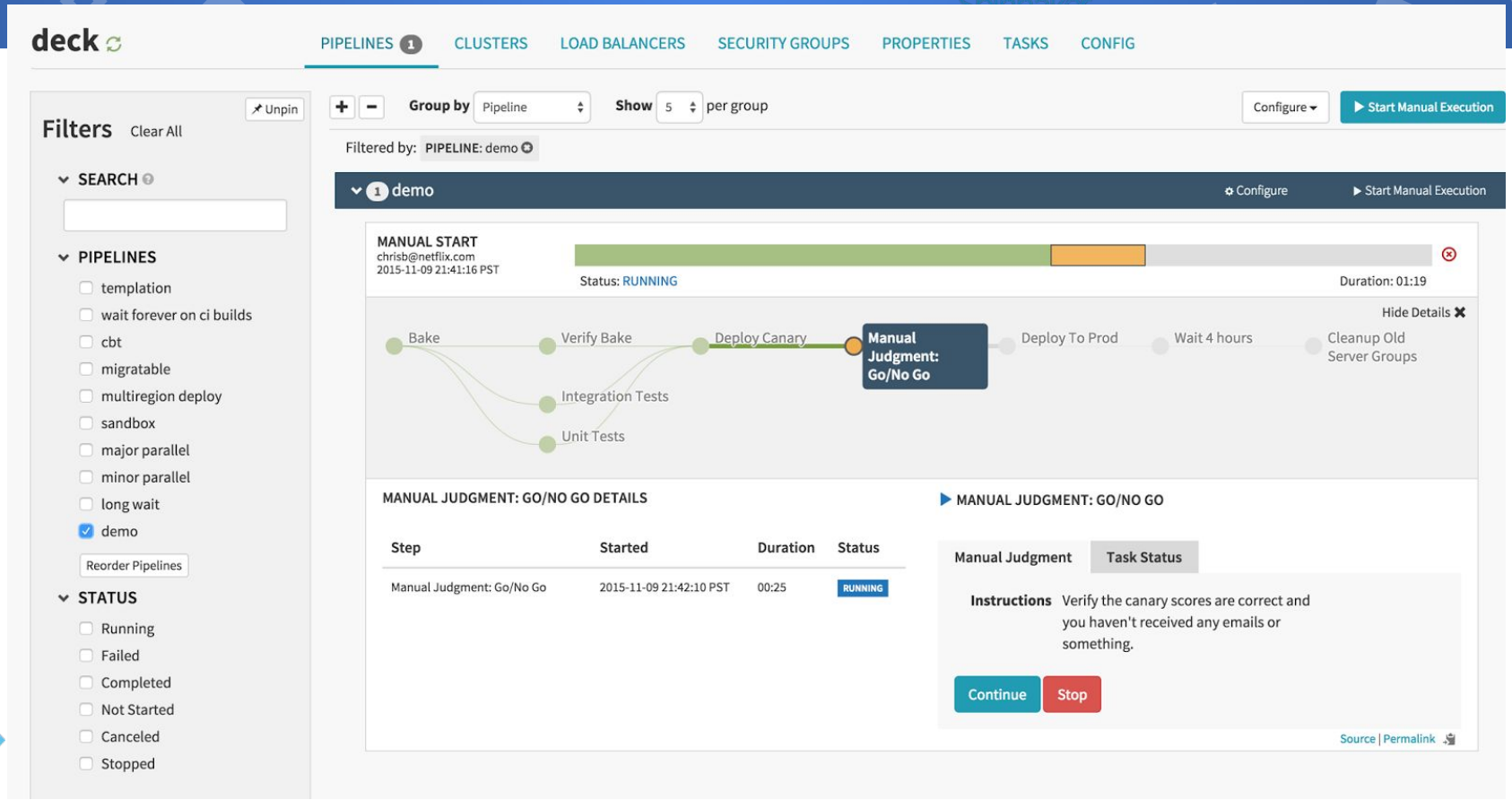
- Pick a small homogenous base that can be built upon
- Don’t compromise on standards you set

- Examples:
  - Multiple Base OSes vs Single Base OS
  - Support Java only vs Support both Java and JS

Deploy Fast, Deploy Often.

- Make deploying the fastest part of your pipeline.
- Remember that whatever you implement needs to be:
  - Easier to use
  - Equally performant in deployment/rollback
  - More available and reliable
- Cookie cutter all the things! Consider an immutable architecture.
  - Infrastructure
  - Deployments
  - Rollbacks

Spinnaker



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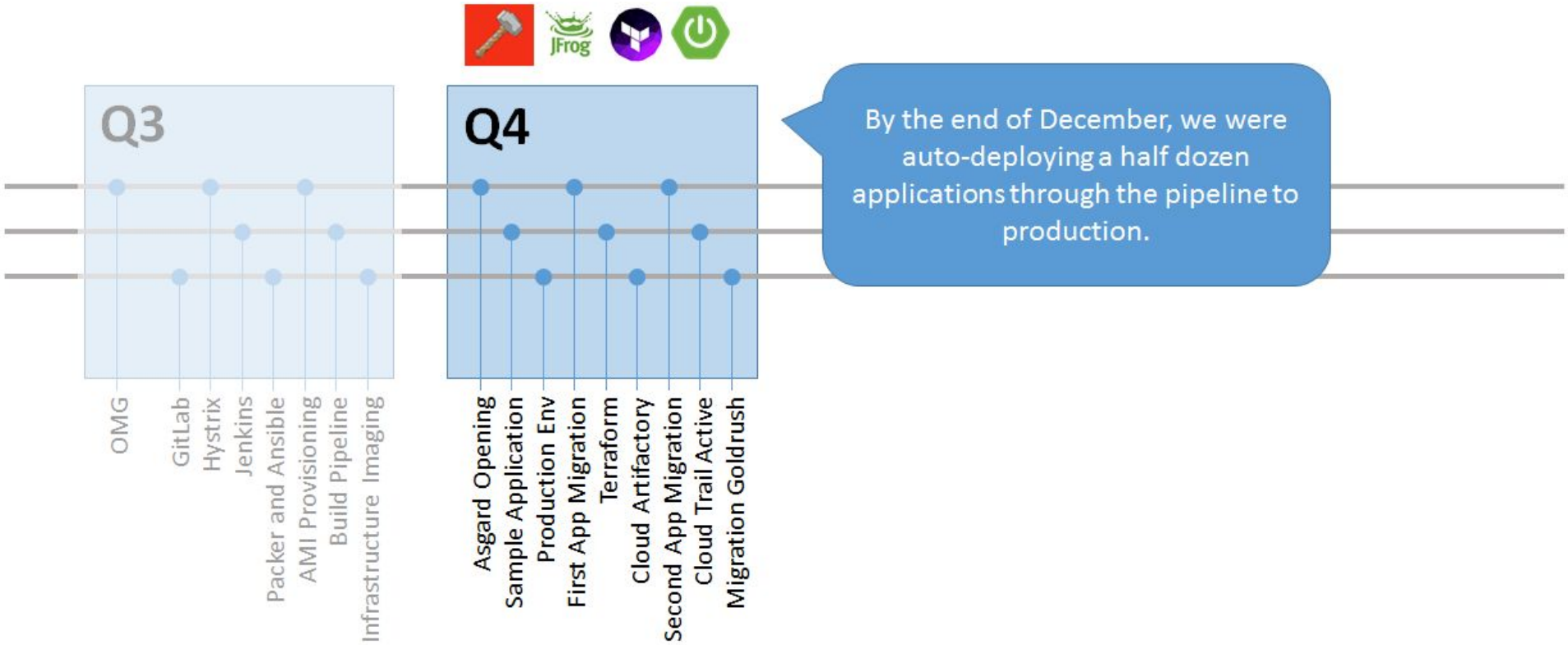
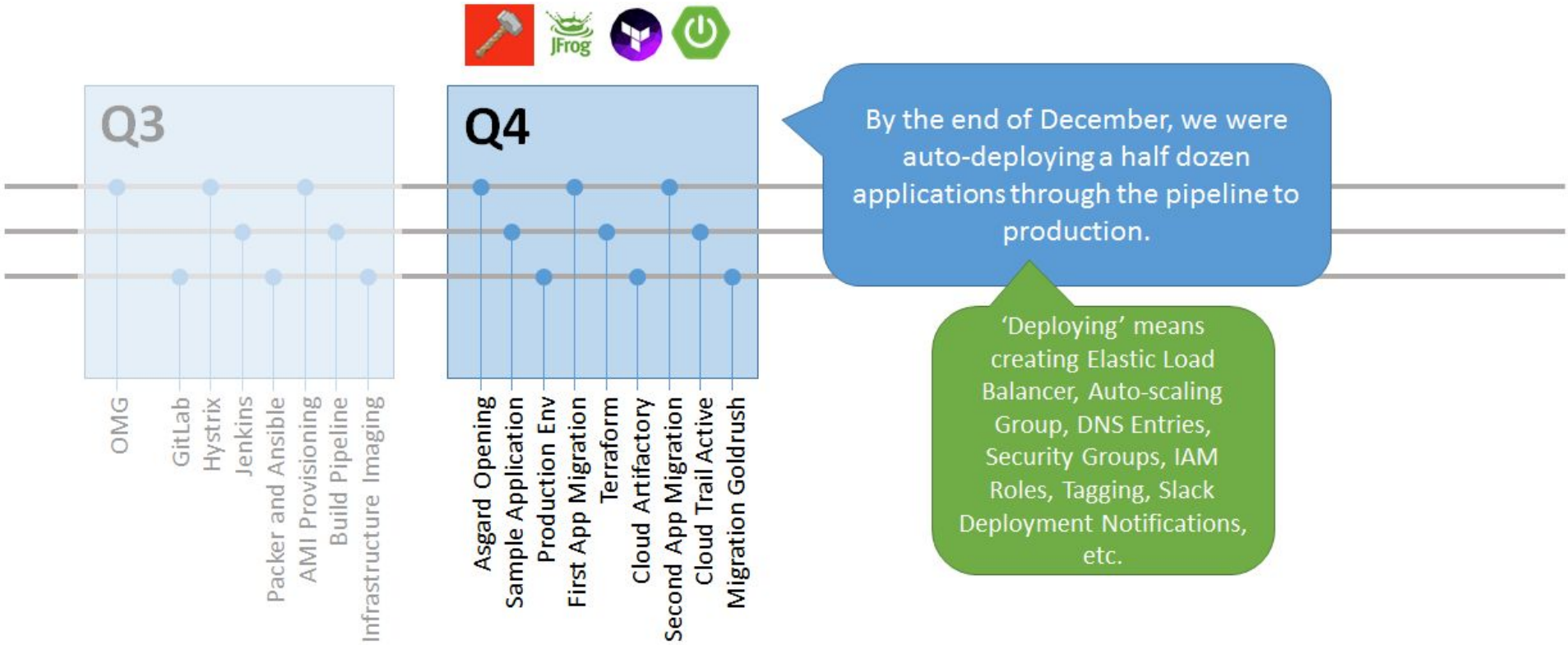
HashiCorp All the Things



How did we do this?

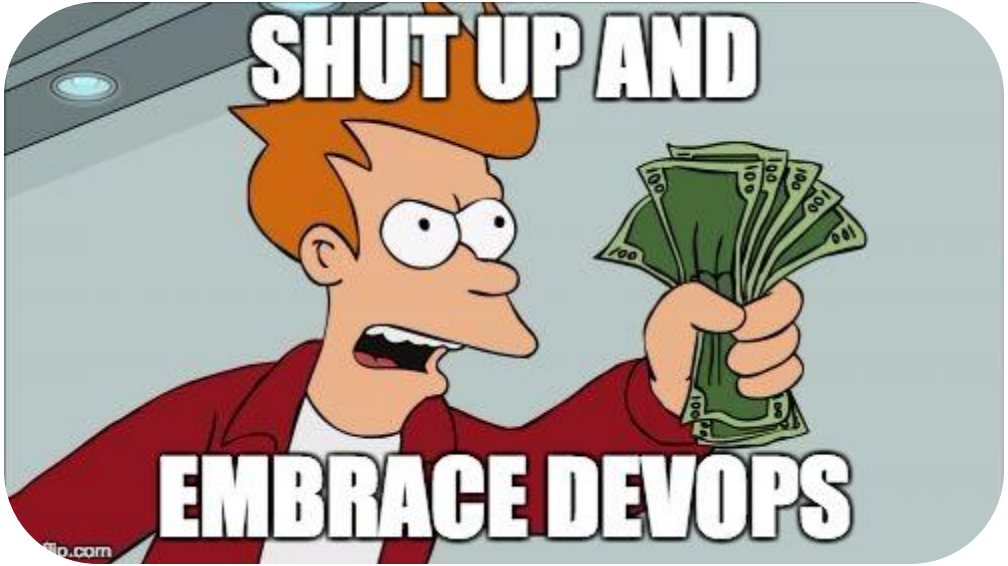
Phase 2: Fear/Doubt



How did we do this?

Phase 2: Fear/Doubt

Phase Three



Compromise

What do we really need?

- Ask why specific processes exist
- Evangelize the concept of DevOps across your organization
  - DevOps covers both technical and non-technical teams
- What can be reused? What can be deprecated?
  - Use metrics in your favor
  - Explain benefits of change
  - Improve support

Understand Technical Debt

- By this phase you may have already incurred technical debt

“

“You are not special. You’re not a beautiful and unique snowflake.”

- *Tyler Durden, Fight Club (1999)*

“There is never a tomorrow but there is always a today.”

Understand Technical Debt

- By this phase you may have already incurred technical debt
- Early on you had the ability to try to make everything perfect
- Don't find yourself reinventing the wheel
  - What happens when you need to invent the wheel?
- Don’t force a tool to do something it was not built to do.

Goodbye QA...Hello Quality Engineering

- Responsibilities still the same; QE still writes automated tests.
- QE now is empowered to write code and test as close to source as possible.
- Testing is fully integrated into the pipeline and tests should be run after every deployment
- Testing through the pipeline should provide not only fast feedback but accurate feedback as well

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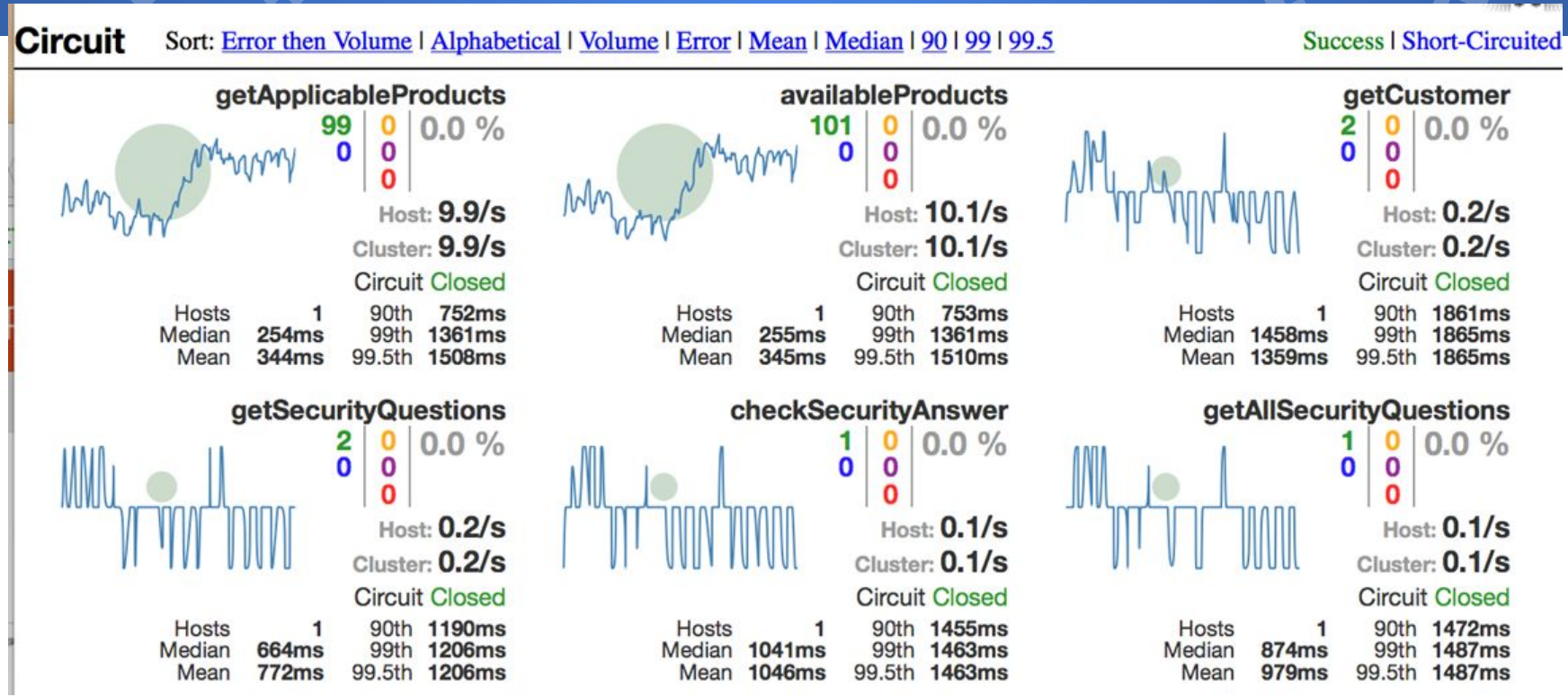
Metrics/Monitoring: A First Class Citizen

- Metrics and Monitoring teams are now DevOps as well
- Build a service offering to eliminate guess work of tools, establish agreed upon alerts and quotas
- Developers are now on call so it's important they provide accurate health of their application
  - OS Level Metrics
  - Application Level Metrics
  - Service Level Metrics

Hystrix



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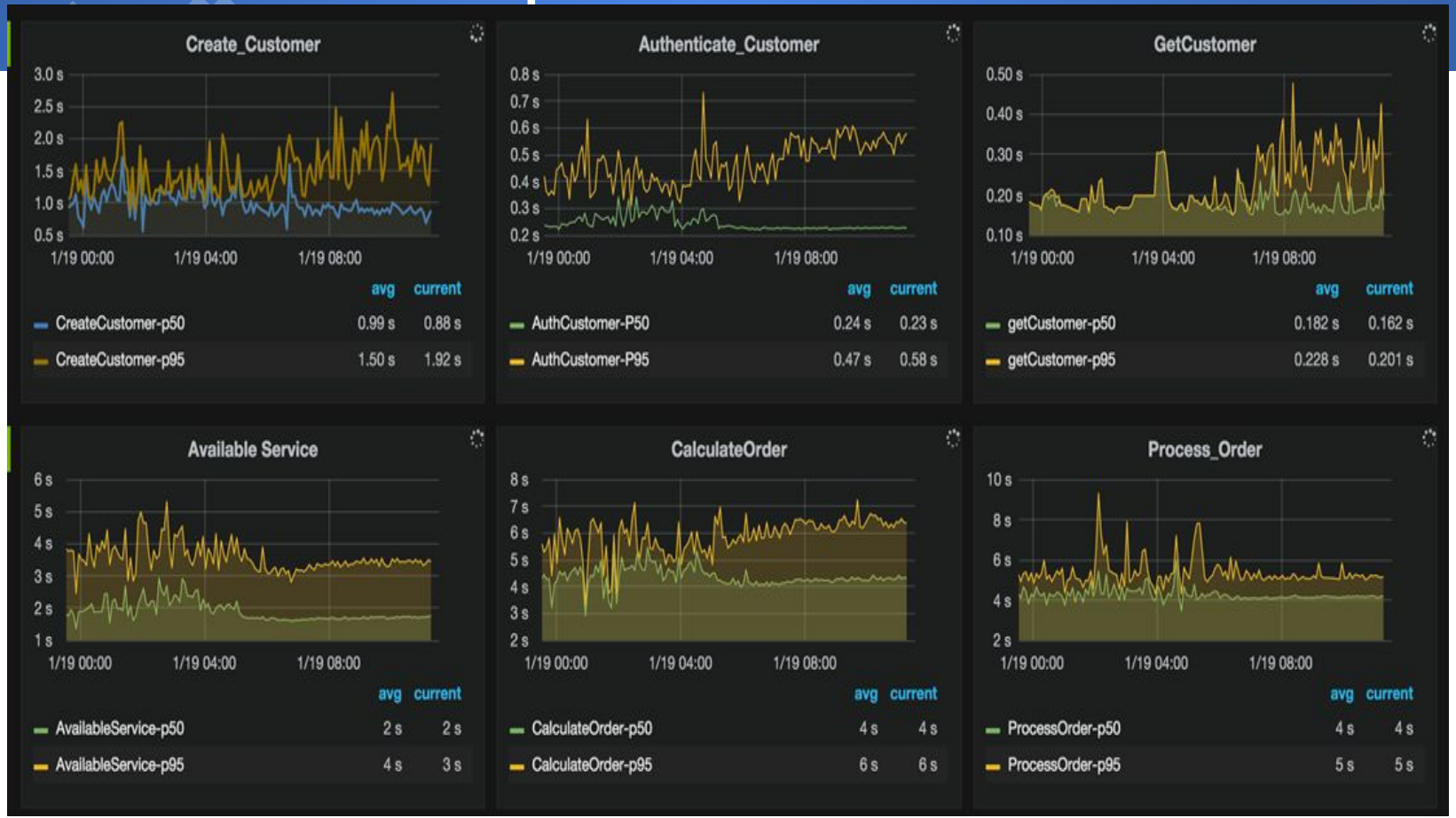
Graphite + Grafana



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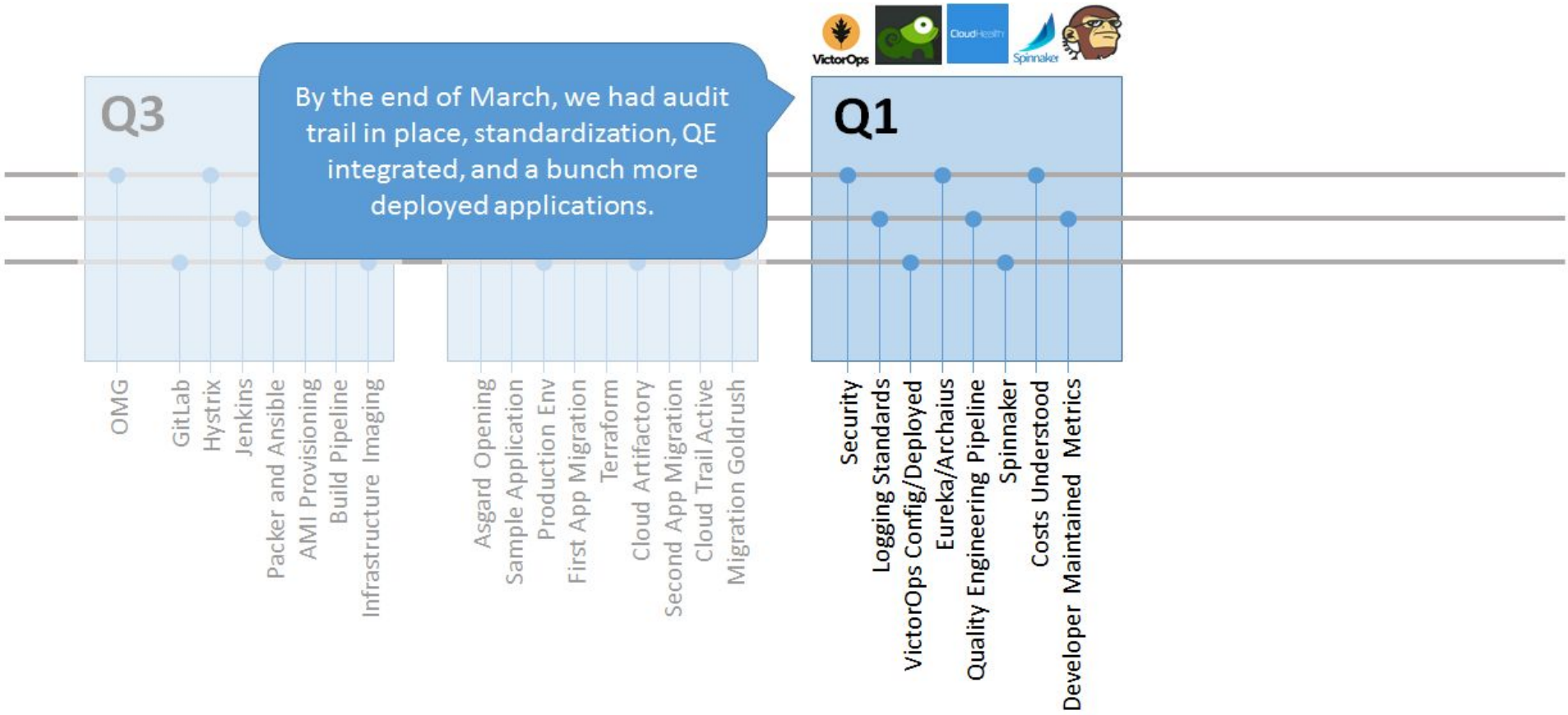


How did we do this?

Phase 3: Compromise

Phase Four

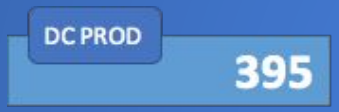
Acceptance

People like us! They really like us!

- People are going to begin having educated conversations
  - How do I make my code better?
  - Do I have circuit breakers for when things go wrong?
  - Do I have accurate and meaningful metrics?
- At this phase, early adopters are starting to see a net positive.
- You are going to see plenty of new customers
  - Majority will be cookie cutter
  - Now you can focus on edge case requirements

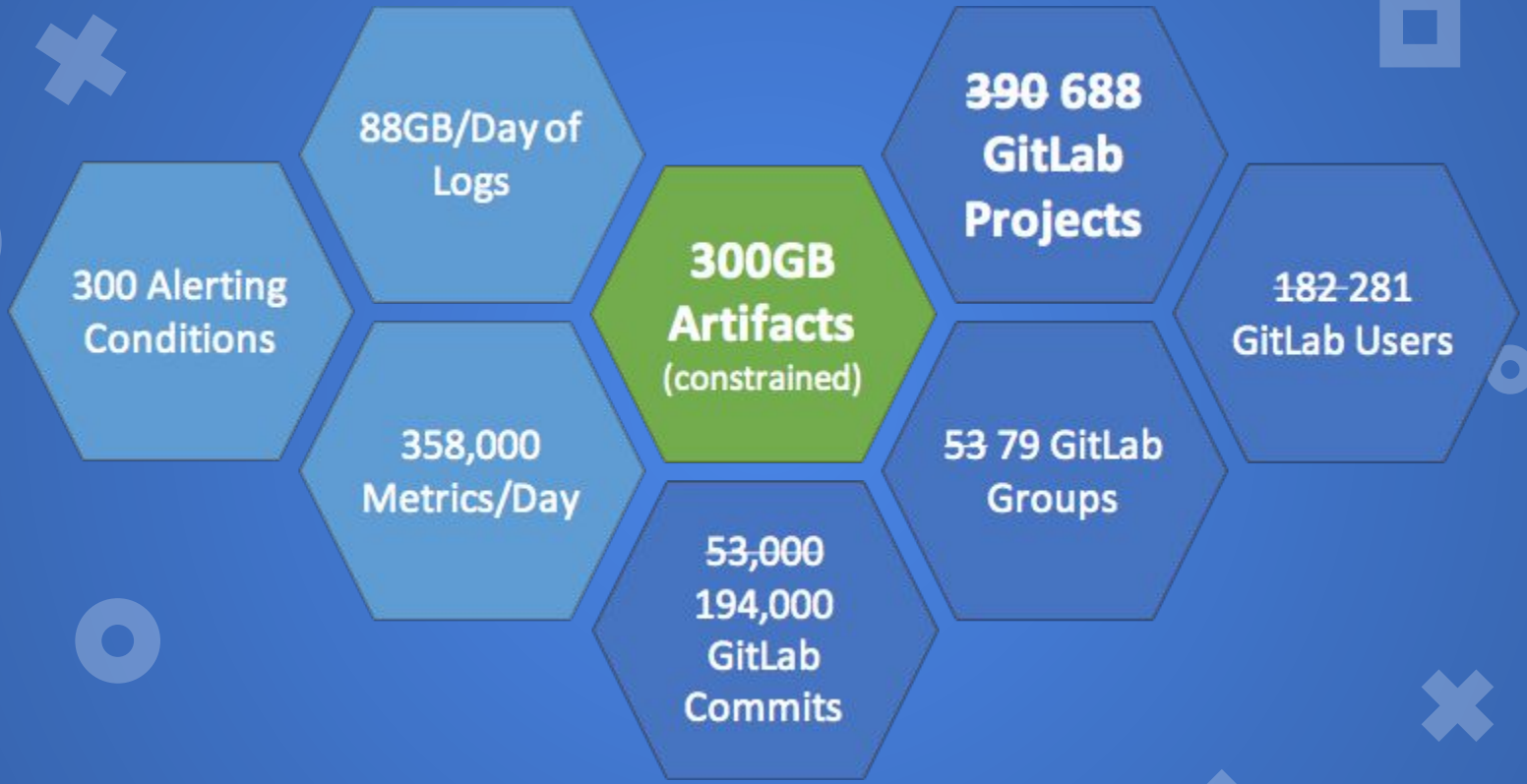
Some Deployment Statistics

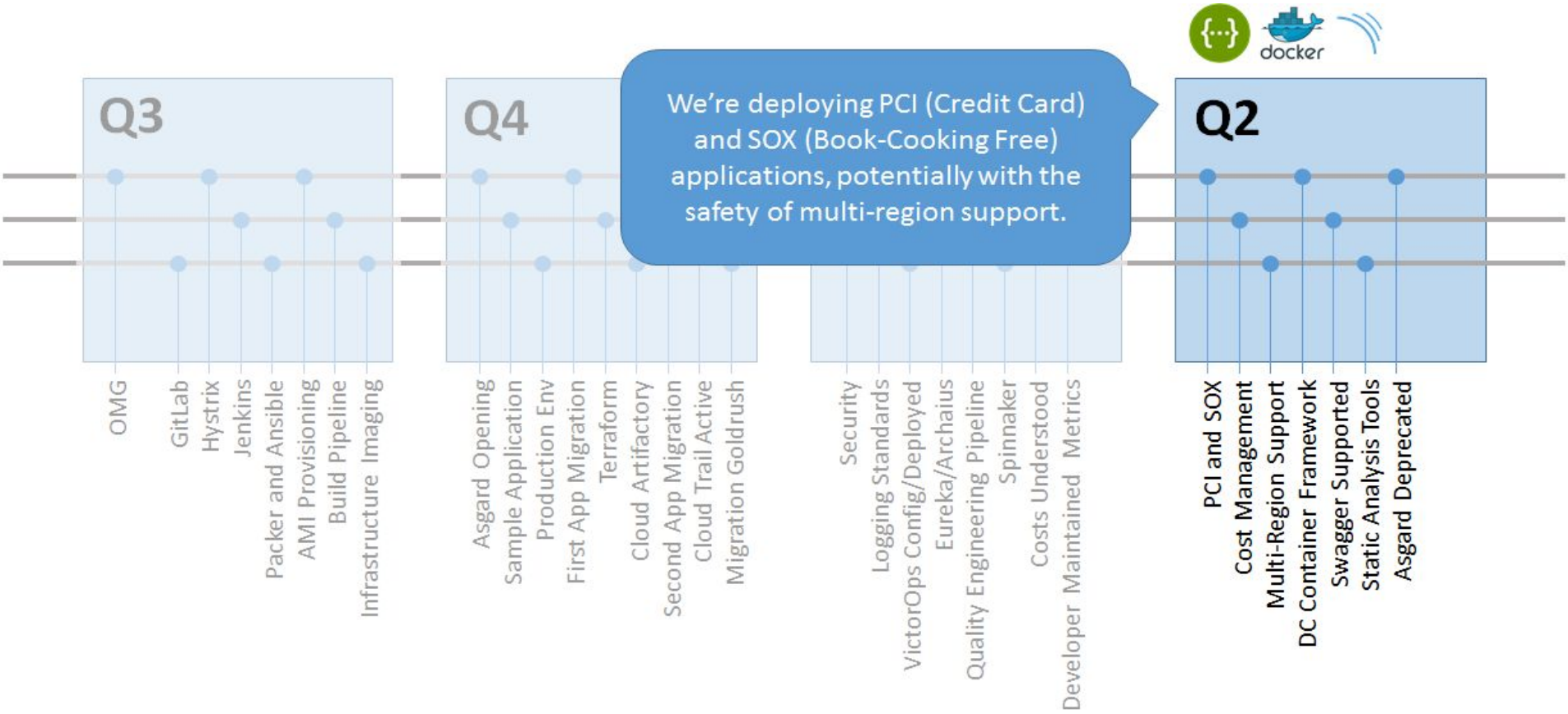
Traditional Deployments to PROD (all of 2015)



Number of Applications Deployed (Feb 1st - April 28th)

Total Deployments (Feb 1st 2016 - April 28th)


88GB/Day of Logs
300 Alerting Conditions
300GB Artifacts (constrained)
~~390~~ 688 GitLab Projects
~~182~~ 281 GitLab Users
358,000 Metrics/Day
~~53~~ 79 GitLab Groups
~~53,000~~ 194,000 GitLab Commits



How did we do this?

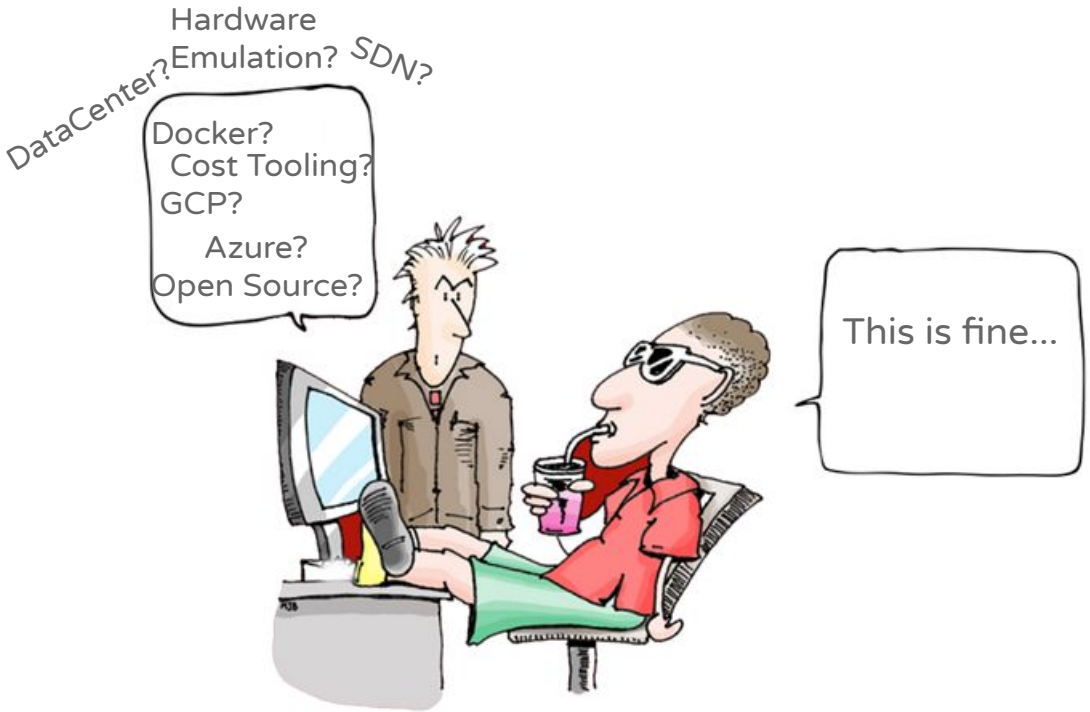
Phase 4: Acceptance

Phase Five

Relief and….Repeat

Relief and Repeat?

- Things are pretty stable by now
- App Engineers no longer need to use iTerm2 with 12 concurrent terminal sessions to restart all the nodes at once
- Deployments are faster than ever
- Developers are empowered to make their own changes and have increased expectations



So we are done right?

Phase 5: Relief and....Repeat

Already on Spinnaker?

- Gogo is working to open source Foremast
  - A Spinnaker pipelineDSL
- Enables developers to version control pipelines and infrastructure requirements in a single place: the application repository
  - One source of truth for application infrastructure information
  - Infrastructure as Code
- Sound interesting? Using Spinnaker today? Come talk after!

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Thank You!

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https://www.gogoair.com/careers