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First black friday with critical apps on Kubernetes

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Me

- Started working on a street fair at 11 - was fired
- Selling ice cream at 11
- Electronics at 16, sysadmin at 18, programming at 21
- Had two startups
- Four kids, skateboarding, saxophone
- SRE manager at Luiza Labs



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Luiza Labs

- First R&D, eventually the whole IT of Magazine Luiza
- Created in 2013, brought a new culture to the company
- Innovation doesn't happen in isolation



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Magazine Luiza

- It's not a magazine, it's a retail company
- 60 years
- 800 stores over the country
- Founded in Franca, São Paulo - Brazil





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Magazine Luiza

- 4+ USD billion annual revenue
- Several digital selling channels
- Most valued stock in 2016





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2014 Black Friday

- **Ops:** two guys, receiving demands from everyone
- **Dev:** ~40 people
- **Architecture:** development culture, automation
- **How we run and deploy code:** manually, chef, fabric, ... ?

1h down on friday



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2015 Black Friday

- **Ops:** manager, coordinator, four guys, way more organized
- **Dev:** 100+ people
- **Architecture:** development culture, automation
- **How we run and deploy code:** chef, fabric, ansible, rundeck

~26 minutes down on friday



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Kubernetes

- Basics quickly understood
- Production apps since May 2016
- AWS and GCP
- We needed a quick and easy way to deploy apps



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Teresa

- You have a Kubernetes cluster, plug Teresa on it
- Buildpacks
- As simple as possible
- Written by one full-time engineer
 - Who was learning Go and Kubernetes
- API run as a pod, cli is herokuish



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Kubernetes and Teresa

- Before Black Friday, more than 700 deployments on production
- Developers don't write Dockerfiles, yaml - it's simpler: Procfile
- Ops quickly understood Kubernetes
- Developers friction with ops reduced



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Cluster scaling

- Scaling up: increase instances on ASG
- Scaling down:
 - Pay attention to the termination policy
 - `kubectl drain` on newest, or oldest instances - depending on your termination policy
 - decrease instance count on ASG



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Cluster issues

- Some load balancers edited on AWS
- Too many API calls, too many routes
- Nodes on ASG, but single master
- Single AZ
- ...
- It basically runs so well, we first installed with `kube-up.sh` and forgot about it.



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Right before Black Friday

Again on that tension:

Don't touch the environment versus I have a better version of it that'll avoid *possible* issues



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Then what?

- New cluster with kops
- Fallback cluster with multi-AZ, HA and everything
- All the apps were copied by copying the etcd tree
- DNS weighted records were configured



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2016 Black Friday

- **Dev:** ~120
- **Architecture:** focus on Kubernetes, Teresa and automation
- **How we run and deploy code:** ansible, rundeck, kubernetes and teresa

no incidents



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What happened in 3 years?

- **2014: 40 developers, 60 minutes down**
 - ops was manually touching the environment
- **2015: 100 developers, 26 minutes down**
 - some more automation and way more freedom to developers
- **2016: 120 developers, 0 minutes down**
 - even more automation, developers could deploy critical apps to production whenever they want, without notice



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Build a deploy pipeline, get the right developers and let them release



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More mistakes

- On Teresa
 - go-swagger
 - Single developer for a while
 - No tests





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Takeaways

- Always educate people. Care about it.
- Empower people. Get rid of anyone doing anything close to the opposite.
- If you rely on strict and slow processes to release software, you might have the wrong people.
- Kubernetes is still hard, but only a few people need to understand it.
- Move to cloud native apps asap, even running on premise.



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