K8s and CM

Alex Chistyakov, an engineer

Outline

- A brief discussion on retarded animals like these \/

- Tragical events of my life

- Random jokes

- A state of the industry

DevOps engineering is magic

- Any DevOps engineers on that conference?
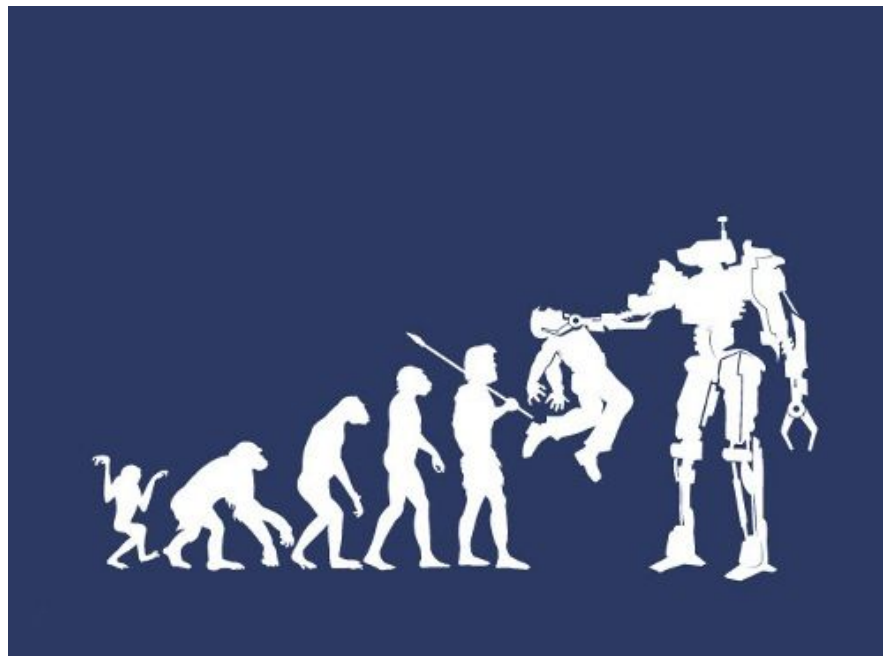
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DevOps engineering is magic

- BTW WTF is DevOps?

Evolution

- BTW WTF is DevOps?

CM was good

- Please start crying if you are a Chef expert

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CM was good

- Please start crying if you are a Chef expert

- If you are a Puppet expert, what are you doing here?

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CM was good

- Please start crying if you are a Chef expert

- If you are a Puppet expert, what are you doing here?

- You should be extinct

Ansible was good

- I've been using Ansible past four years

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- Earned enough money to get a personal shrink

Ansible was good

- I've been using Ansible past four years

- Earned enough money to get a personal shrink

- Authored and co-authored 200+ publicly available Ansible roles in various repos

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Ansible was never good

- How come, Red Hat Inc.?

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- 6 years since initial release

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Ansible was never good

- How come, Red Hat Inc.?

- 6 years since initial release

- And still no decent Linux firewall configuration module?

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I need an escape plan

- Let's write our own Ansible!

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I need an escape plan

- Let's write our own Ansible!

- Or maybe just fix an existing one

Breakdown and milestones

- Develop a firewall configuration module for Ansible
  finally

Breakdown and milestones

- Develop a firewall configuration module for Ansible finally

- Rewrite Ansible in Haskell

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Breakdown and milestones

- Develop a firewall configuration module for Ansible

  finally

- Rewrite Ansible in Kotlin

Breakdown and milestones

- Develop a firewall configuration module for Ansible

  finally

- Rewrite Ansible in Scala/Native

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Breakdown and milestones

- Develop a firewall configuration module for Ansible finally

- Rewrite Ansible in Racket

Breakdown and milestones

- Develop a firewall configuration module for Ansible finally

- Rewrite Ansible in Rust (QUIA POSSUMUS!)

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I'm agile

- Rewriting Ansible in any language is like this:

Let's collect some requirements

- We need a way to describe a desired state **declaratively**

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- … and safely! (so, static typing or a linter)

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Let's collect some requirements

- We need a way to describe a desired state **declaratively**

- ... and safely! (so, static typing or a linter)

- We need a way to **enforce** the desired state

Let's collect some requirements

- We need a way to describe a desired state **declaratively**

- ... and safely! (so, static typing or a linter)

- We need a way to **enforce** the desired state

- Ansible, really? Are you kidding?

OK, but the firewall is still there

- Writing an Ansible module seems to be simple

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- Except when it's not

OK, but the firewall is still there

- Writing an Ansible module seems to be simple

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- The desired state should be clearly defined (how?)

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OK, but the firewall is still there

- Writing an Ansible module seems to be simple

- Except when it's not

- The desired state should be clearly defined (how?)

- The desired state should be enforced unambiguously

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We need a plan again

- A desired state is just a complex data structure expressed in YAML

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- Or a program in a Ruby eDSL

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- A desired state is just a complex data structure expressed in YAML

- **Or a program in a Ruby eDSL**

What is Docker?

- An infrastructure company without a decent

   monetization strategy

What is Docker?

- An infrastructure company without a decent monetization strategy

- Will be shut down or sold next year, I hope

What is Docker?

- A piece of software written not in Python

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- So, is better than OpenStack anyway

What is Docker?

- A piece of software written not in Python

- So, is better than OpenStack anyway

- Will be properly modularized and largely rewritten in

  Rust, I hope

Why is Docker still relevant?

- Because of Kubernetes!

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What is Kubernetes?

- A container orchestration tool

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- (The last survived one)

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- http://smartenesse.sirotin.eu/anna-karenina-principle-in-software-engineering

What is Kubernetes?

- A container orchestration tool

- (The last survived one)

- http://smartenesse.sirotin.eu/anna-karenina-principle-in-software-engineering

- A modern operating system (to some degree)

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Modern container orchestrator

- Should have a working network layer

Modern container orchestrator

- Should have a working network layer

- Should describe environments declaratively

Kubernetes

- Pluggable network providers

- YAML for configs

What is Helm?

- A package manager for Kubernetes

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What is Helm?

- A package manager for Kubernetes

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- A template engine (oh noes!)

- Written by Lisp lovers

- A de facto standard in K8s world

Alternatives

- "kubectl apply -f" (should be parameterized externally)

- https://github.com/fkorotkov/k8s-kotlin-dsl

- https://ksonnet.io

- https://gitkube.sh

- https://draft.sh

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Helm has an m-healthy community

- https://kubeapps.com - a public repo of K8s-ized apps

- Charts repo on Github:

  https://github.com/kubernetes/charts

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Conclusions

- Helm is a better Ansible (maybe not Ansible at all, but better)

- My personal shrink will be able to buy some more real estate property soon

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Questions?

- alexclear@gmail.com

- Skype, Telegram: demeliorator

- A Telegram channel (dormant):

  http://t.me/lhommequipleure

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