Infrastructure Automation Basics

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Agenda

Part 1 - Backgrounds

1. Introduction
2. IT Service
3. IT Infrastructure
4. XaaS
5. IT Infrastructure Automation
6. DevOps

Part 2 - Demo

1. Coding according to DevOps

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1 / 31

Introduction

Daniel Schier

- working as cloud craftsman
- inspired by "The IT Crowd" and "Mr. Robot"
- older than Linux

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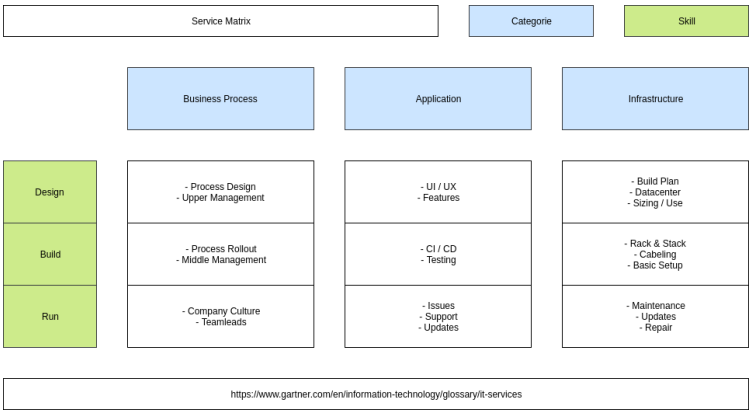
- since 2000
- Quality, Cloud, Security

IT Service

[/ˈsəːvɪs/]

a system supplying a public need

IT Service



IT Infrastructure

physical, virtual, container, API

IT Infrastructure

Everything you don't develop may be considered infrastructure.

For a web developer:

- webserver
- database
- loadbalancer

For a server administrator:

- IP addresses
- domain names
- network time

IT Infrastructure

Your code may depend on your environment.

When using bare metal servers:

- Redfish
- IPMI
- OMAPI

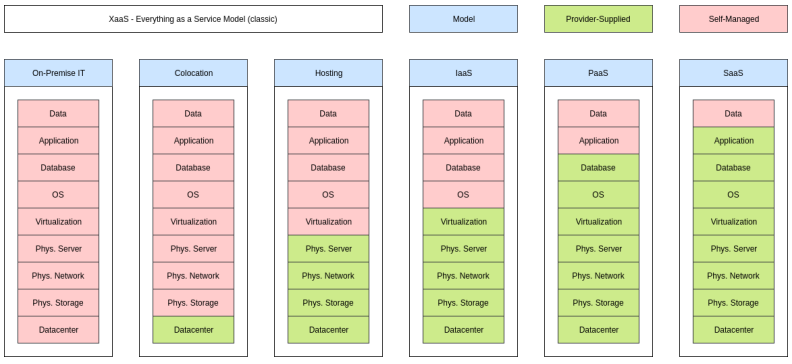
When using Amazon AWS:

- EC2
- BOTO
- Security Groups

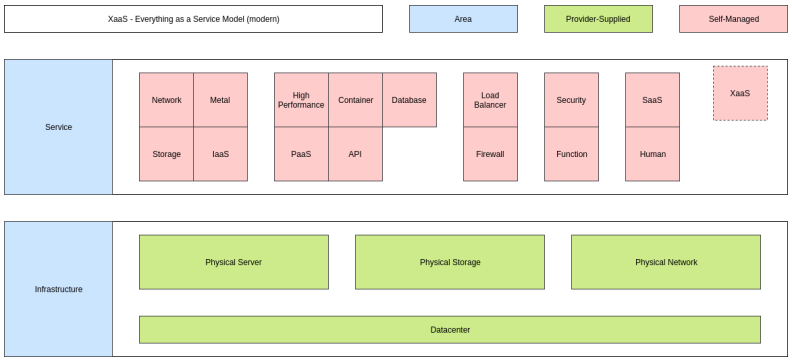
XaaS

Everything as a Service

XaaS - classic



XaaS - modern



XaaS - Metal as a Service

Metal as a Service = Hosting (modtly)

- getting a "ready to use" server
- most likely some infrastructure (dns, ntp, ip addresses)
- access via web interface
- most likely paid

Examples:

- Hetzner
- Linode
- Datacenter provider

XaaS - Software as a Service

Software as a Service = Cloud (likely)

- getting a "ready to use" Software
- often considered as "Cloud"
- you may need an account
- free or paid

Examples:

- Dropbox
- Google Mail
- wordpress.com

XaaS - Function as a Service

For Developers, this could be a nice addition.

- upload your Code and run your application
- no need to specify infrastructure, network or else
- you may need an account
- free or paid

Examples:

- Amazon AWS
- Google Cloud Platform
- Heroku
- OpenShift Online

DevOps

Development + Operations = DevOps

+ Security = DevSecOps

DevOps - Why?

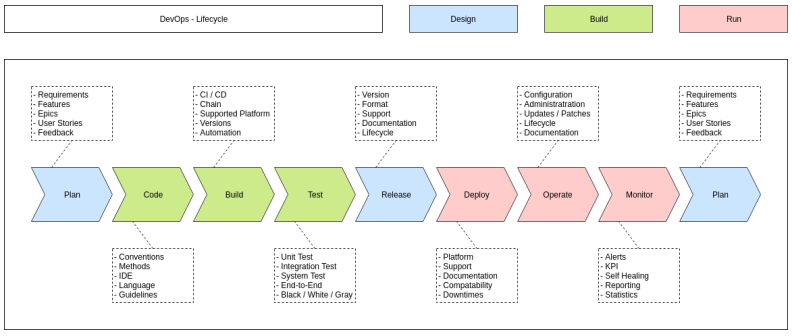
- Development is getting more and more agile
- SCRUM is considered the "de-facto" Agile Standard
- fast Releases expected, but IT Operations was slow
- IT Operations needed to define the whole environment
- Agile Development vs. Release Driven IT

And remember it's all about putting the fun back into IT!

DevOps - Principles

1. Automation
   - Automate Everything
2. Culture
   - Peoples and Processes first
3. Measurement
   - Success Stories are made of Numbers
4. Sharing
   - Share Knowledge, Feedback, Ideas

DevOps - Lifecycle



IT Infrastructure Automation

Applied DevOps for your IT Infrastructure to deliver high quality very fast.

"Infrastructure as Code"

IT Infrastructure Automation - Principles

1. Idempotence
2. Consistency
3. Quality
4. Maintainability
5. Documentation
6. Re-Usability

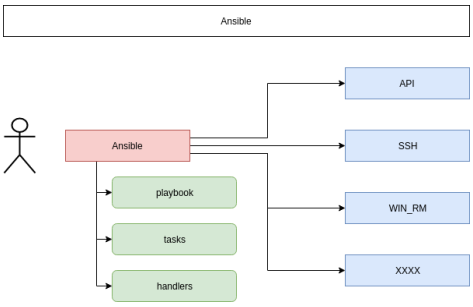
IT Infrastructure Automation - Tools

- **Ansible**
- cfengine
- Chef
- Puppet
- Saltstack
- Scripts
- Terraform
- Enterprise Automation from (Micro Focus, VMWare, BMC, IBM, ...)
- Cloud Specific Automation (Amazon, Google, Digital Ocean)

IT Infrastructure Automation - Ansible

- easy to learn
- only yaml and some python needed
- push principle
- tons of connectors/modules
- open source and enterprise support

IT Infrastructure Automation - Ansible



Demo Time

less talking, more coding, demo time

Demo Time - Planning

scope

- AWS as infrastructure provider
- one webserver is needed
- website already on github
- selinux and firewall needed

steps

- deploy server
- install software
- checkout website

Demo Time - Coding

steps

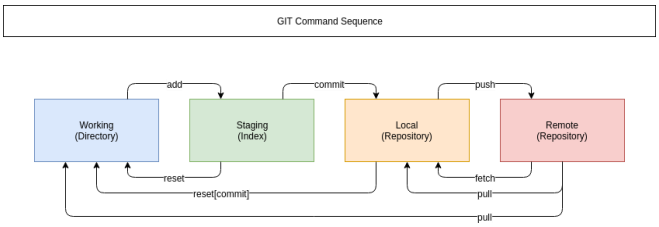
- do the coding
- yep, I am using vim now

Demo Time - Testing

steps

- let's see lint
- and one test

Demo Time - Release



steps

- use git
- add tag
- push to repository

Propaganda

like, subscribe, bell ...

Propaganda

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- https://www.proficom.de
- kontakt@proficom.de

Container Meetup

- 26.11.2019
- AWS + Ansible + Special Guests + TU Dresden talking about containers
- https://tu-dresden.de/mn/der-bereich/termine/container-meetup-dd
- https://www.meetup.com/de-DE/Ansible-Meetup-Dresden

Propaganda

the speaker

```
# github.com/kudos-txt/

- name: Daniel Schier
  home: Dresden, Germany
  mail: daniel@while-true-do.io
  chat: freenode:#while-true-do,@daniel-wtd
  code: https://github.com/while-true-do
  code: https://github.com/style-cheat
  code: https://github.com/kudos-txt
```


End

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