scm$_{k}nowledge_{b}ase$

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FORGE

CHAPTER 1

DevOps Knowledge Base

This knowledge base includes topics of: Software Configuration Management, Continuous Delivery, Infrastructure Orchestration and DevOps

CHAPTER 2

Contents

2.1 Software Configuration Management

2.1.1 SCM Generic Topics

- Difference between Software Configuration Management and Hardware Configuration Management: scm-vs-hcm
- Streamlining Build Processes and Configuration Management: streamlining-scm

SCM and CM Industry Standards

- EIA 649-A National Consensus Standard for Configuration Management
- IEEE Std 1042-1987 Guide to Software Configuration Management
- IEEE Std-828-1990 Standard for software CM Plans
- ISO 10007 Quality management systems – Guidelines for configuration management
- STANAG 4159 NATO Materiel Configuration Management Policy and Procedures for Multinational Joint Projects
- STANAG 4427 Allied Configuration Management Publications
- MIL-HDBK-61A(SE)
- ECSS-M-ST-40C – ESA (European Space Agency) – Aerospace Industry

ITIL

- Fix change not ITIL: fix-change-not-itil

SCM Frameworks

BOSH

- BOSH is a Cloud Foundry project for release engineering, deployment, and lifecycle managemen: bosh-homepage

2.1.2 Code Management

Best Practices

1. Build an abstract Layer between your Version Control System system and the entire SCM Toolkit.
2. Atomicity, so every operation is atomic, 0 or 1, True or False, there are no states in between.
3. Avoid storing different types of data than the actual source code (no binfiles, media, etc..).

Common Problems

Pull Request VS Code Review

- On Pull Requests: on-pull-requests

Choosing VCS System

- Ohloh comparison: ohloh-comparison
- Why Git? why-git
- 2013: A Year of Open Source at Facebook: open-source-facebook
- The Open Source Wave in SCM: open-source-wave

Branching

- Recommendations on Branching: recommendations-branching
- Branching Models: branching-models
- Feature development lifecycle with Git: feature-lifecycle
- Simple Git workflow is simple: simple-git-worklfow
- Branching Patterns for Parallel Software Development: branching-bradapp

Performance & Scaling

- Facebook and Git performance issues: facbook-git
- Facebook and Mercurial scaling: facebook-mercurial

Binary Files

For every Distributed Version Control System (DVCS) handling (especially large) binary files is an issue.

- How to handle big repositories with git: handle-big-repositories-git
- Git Document Sharing: git-document-sharing
- Using Git to Manage the Storage and Versioning of Digital Objects richard-anderson-stanford
- Git & Perforce comparison: git-perforce-bin-files
- Linus Torvalds about big objects in Git: linus-big-objects

Creating Workspace

For every Distributed Version Control System (DVCS) creating a workspace operation may be an issue, especially for big repositories or repositories with a big number of projets (subrepositories).

- Facebook: "it takes about 10 minutes to begin discovering commits in Facebook's 350,000-commit primary repository, and about 18 hours to import it all with 64 taskmasters on modern hardware." Source: facebook-creating-workspace.

VCS/DVCS Migrations

- Choosing the right Git hosting service: choosing-git-hosting
- Use Git even if your team doesn't: git-svn tips and tricks: git-svn-tips-and-tricks
- Migrating a large codebase to Git with Atlassian Stash: atlassian-svn-to-git
- Eight key points to consider: clearvision-migrations
- Django migration to Github: django-github-migration

Large Changes in Code Review

Most of Code Review tools do not support large changes.

- How Facebook deals with the problem: facebook-large-changes1 and facebook-large-changes2

Versioning

Android Starting with Cupcake, individual builds are identified with a short build code, e.g. FRF85B. The first letter is the code name of the release family, e.g. F is Froyo. The second letter is a branch code that allows Google to identify the exact code branch that the build was made from, and R is by convention the primary release branch. The next letter and two digits are a date code. The letter counts quarters, with A being Q1 2009. Therefore, F is Q2 2010. The two digits count days within the quarter, so F85 is June 24 2010. Finally, the last letter identifies individual versions related to the same date code, sequentially starting with A; A is actually implicit and usually omitted for brevity.

- Versioning - an Underrated Discipline: versioning-underrated-discipline
- Semantic Versioning: semantic-versioning

Tools

Centralized VS Distributed

- Attlassian blog: atlassian-blog

Git, Mercurial and Bazaar domination

- Why Git? why-git
- Clearvision: clearvision-dvcs
- RedMonk: redmonk-dvcs

- Ian Skerrett: ianskerrett-dvcs
- Atlassian: atlassian-dvcs
- Why switch to Bazaar: bazaar-switch

Git

- How to Deal with mess in Git?: deal-with-git-mess
- Useful Tips: useful-tips
- Gitflow - branching model: gitflow-branching-model

Tools and Plugins

- PowerShell + Git integration: posh-git
- Doing Git Your Way: git-your-way
- Sexy bash prompt: sexy-bash-prompt
- Gittle: gittle

Git Propaganda

- Why Git? why-git
- GitHub: 10 Million Repositories: github-10-milion
- Microsoft announces Git support: microsoft-announces-git
- Google announces Git support: google-announces-git
- Bitbucket announces Git support: bitbucket-announces-git
- CodePlex: codeplex-announces-git

Git Branching

- Stackoverflow: stackoverflow-branching
- Reinh: reinh-branching
- nvie: nvie-branching
- Github Flow: github-branching

Git on Windows

- Mercurial as a workaround: mercurial-git-workaround

Git & Multiple Projects

- Managing Many Repos: managing-many-repos
- Gitslave: gitslave
- Submodules: submodules

Git Tools

- Building a Git Server: building-git-server
- gitsh is a new way to use Git: gitsh

Git Use Cases

- Texas Instruments and Git: texas-instruments

Online Tutorials

- Pro Git book: pro-git
- Interactive Git Tutorial: interactive-git
- Git Immersion: git-immersion
- Git Howto: git-howto
- Git Pro [lang=PL]: git-pro
- SAP documentation about Git & Gerrit: sap-gerrit
- Bare vs non-bare repositories: bare-vs-nonbare
- Git by Example: git-by-example
- Visual Git Guide: visual-git-guide
- Git Tutorial: git-tutorial
- Git bisect: git-bisect
- Video tutorial: video-tutorial
- Git Pocket Guide: git-pocket
- Code School: code-school
- How to quickly to start with Git: how-to-start

Git Presentations

- Randal Schwartz: **randal-schwarts-git_**
- Randal Schwartz - Google Tech Talk: **randal-schwarts-tech-talk-git_**

Git cheatsheets

- Git Tower Cheat Sheet Grey: git-tower-cheatsheet-grey
- Git Tower Cheat Sheet Detail: git-tower-cheatsheet-detail
- Nerdgirl Cheatsheet: nerdgirl-cheatsheet
- NDP Software Cheatsheet: ndp-cheatsheet

Best Practices

- Git Best Practices: git-best-practices

Git related articles

- Git Branches: git-branches
- Git diff: git-diff
- On Git's Shortcomings: gits-shortcomings
- Reflog isn't scary: git-reflog
- Git minutes: git-minutes

Git and Android

- Life of a Patch: life-of-patch

Gerrit

- From Code Review to OpsWorks: code-review-to-opsworks
- Code reviews and bad habits: code-reviews-bad-habits and code-reviews-bad-habits-discussion
- FOSDEM: Using Gerrit Code Review: using-gerrit
- Gerrit vs Rietveld and Gitosis: gerrit-rietveld-gitosis
- Gerrit vs other Git servers: gerrit-vs-other
- Gerrit & Jenkins integration: gerit-and-jenkins
- Future of Gerrit/Repo script: future-of-gerrit-and-repo
- Gerrit backup: gerrit-backup
- Gerrit installation: gerrit-installation

Cross Repo Dependencies

- Git and project dependencies: project-dependencies
- QT approach - Staging: qt-crd
- Gerrit contributors discussion: gerrit-crd

Gerrit Server - public instances

- Typo3: typo3-gerrit
- Android: android-gerrit
- QT: qt-gerrit

Tips and Tricks

- Git hooks deployment: hooks-deployment
- Get rid of Git dangling objects: dangling-objects
- Git hooks: git-hooks

Mercurial

Propaganda

- Google announces Mercurial support:
- CodePlex announces Mercurial support:

Architecture

- Mercurial Architecture: ols-mercurial-paper.pdf

Veracity

- Homepage: veracity-homepage

Fossil

- Homepage: fossil-homepage

Boar

- Homepage: boar-homepage

VCS

VCS is an abstraction layer over various version control systems: vcs-homepage. Project seems to be dead.

Commercial

- Perforce and Git Fusion: perforce-git-fusion

Perforce

- Dear Perforce Fuck You: perforce-fuck-you

Code Review

- Every team needs kick-ass code reviews: jira-code-reviews

Phabricator Phabircator is developed and used by Facebook (and many other companies..)

- Homepage: phabricator-homepage

Rietveld

- Installation: rietveld-installation

Code Review Use Cases

- Duke Nuke 3D: duke-nuke-code-review

Tips and Tricks

- Closing issues via commit messages: commit-messages

Resources

- Code managemetn in Facebook: code-management-facebook

Software Development KPIs

Development KPIs

- Lines of code per developer
- Build test failures
- Unit test failures
- Number of bugs found in their code
- Number of bugs fixed
- Actual time to finish a task based against their own estimate
- Number of developers and commits by organization, site or country (Bangalore, Brugge)
- Number of revisions merged per contributor
- Number of revisions abandoned per contributor
- Number of revisions merged per organization, site, country
- Number of revisions abandoned per organization, site, country
- Ratios merged/abandoned
- Number of new contributors with 1 / 2-5 / 6+ changes submitted in the past 3 months
- Number of contributors stopping contributing or decreasing continuously in the past 3 months.

Gerrit KPIs

- Number of Code review comments
- Average time spent on Code Review
- Number of commits reviewed in <2 days, <1 week, <1 month, <3 months, >3 months or unreviewed
- Code Review queue size
- How many new users registered (per day, per month, per year)

SCM Team KPIs

- Time to set up an environment
- Time from change request to release
- Mean time to resolution

JIRA Related KPIs:

- Average time for an accepted bug report between bug creation date and PATCH_TO_REVIEW status being set

- Average time for an accepted bug report between PATCH_TO_REVIEW status being set and RESOLVED FIXED status being set.
- Average time for an accepted bug report between bug creation date and first comment by not the reporter her/himself.

Deployment KPIs:

- Speed of deployment
- Deployment success rate
- How quickly service can be restored after a failed deployment

2.1.3 Build Management

Best Practices

Build Parallelization

GNU Make

Pitfals and Benefits: pitfals-and-benefits

Theory

Build System high level feature proposal: build-system-high-level

Build in the Cloud

- Accessing source code: accessing-source
- How build system works: how-build-system-works
- Distributing build steps: distirbuting-build-steps
- Cloud distributing: cloud-disitributing

Build Automation

- Automatic Creation of Build Jobs: creation-build-jobs

2.1.4 Change Control

Tools

Changelog

Changelog: https://github.com/prezi/changelog

http://engineering.prezi.com/blog/2014/05/28/changelog-a-tool-designed-to-help-you-recover-faster/

Risk

Lowering the risk

Change should be done through tools and culture.

- you are always testing
- use the bots, use the tools, but do not talk to me
- use revision tracker
- introduce post/pre commit gatekeepers
- introduce push-karma

Database Patching

DB Patching Tools

- Flyway: flywaydb
- Maven DB Patch: maven-db-patch
- PostgreSQL SQL based approach: sql-based-patching
- Datical: datical
- Liquidbase: liquidbase

2.1.5 Infrastructure Orchestration

The concept of Infrastructure Orchestration was previously known as Environment Configuration. Many people and organizations are still using the old name, but for purpose of this SCM Knowledge Base We will stick with the newest trend as it is getting more and more popular with every month.

Best Practices

1. Configuration treated as a Source Code
2. Communication of configuration changes

Articles

- Infrastructure with Python: infrastructure-with-python
- Chicken or Egg: Abstraction and Automation: chicken-or-egg-abstraction-and
- Manage Resources like a Hotel: infrastructure-like-a-hotel

Frameworks

Comparisons

- Comparison Grid for Ansible / SaltStack / Chef / Puppet: comparison-grid
- Comparison of open-source configuration management software: wikipedia
- Ansible and Salt: A detailed comparison: ansible-and-salt

Salt Stack

Salt is an open source tool to manage your infrastructure. Easy enough to get running in minutes and fast enough to manage tens of thousands of servers (and still get a response back in seconds). Execute arbitrary shell commands or choose from dozens of pre-built modules of common (or complex) commands. Target individual servers or groups of servers based on name, defined roles, or a variety of system information such as hardware, software, operating system, current version, current environment, and many more.

- SaltStack setup on beaglebone black rev c debian arm: salt-arm
- Home Page: salt-homepage
- Salt to the Rescue: salt-to-the-rescue

Salt Tutorials

- How To Configure a Multi-Master SaltStack Setup: salt-multimaster
- Deploy & Orchestrate infrastructures on Cloud Providers: orchestrate-cloud
- Salt and OpenERP Tutorial: salt-openerp
- Salt targeting: salt-targeting
- Salt states: salt-states
- Getting started with Salt: getting-started-salt
- Deploying Django with Saltstack: django-with-salt
- Tutorial: salt-tutorial

Usage Examples

- Salt and XMPP integartion: salt-and-xmpp
- Salt and Continuous Deployment: salt-continuous-deployment

Propaganda

- Hello SaltStack: hello-salt-stack
- Salty infrastructure: salty-infrastructure

Vagrant

Vagrant is a development tool which stands on the shoulders of giants, using tried and proven technologies to achieve its magic. Vagrant uses Oracle's VirtualBox to create its virtual machines and then uses Chef or Puppet to provision them. By providing easy to configure, lightweight, reproducible, and portable virtual machines targeted at development environments, Vagrant helps maximize the productivity and flexibility of you and your team.

Vagrant Homepage: vagrant-homepage

- Why Vagrant is the Best DevOps Tool Ever: vagrant-devops-tool
- Vagrant 1.5 and Vagrant Cloud: vagrant-1.5
- Vagrant with OpenDaylight: vagrant-with-opendaylight

Puppet

Puppet is IT automation software that helps system administrators manage infrastructure throughout its lifecycle, from provisioning and configuration to patch management and compliance. Using Puppet, you can easily automate repetitive tasks, quickly deploy critical applications, and proactively manage change, scaling from 10s of servers to 1000s, on-premise or in the cloud.

- A simple way to install and configure puppet on CentOS: puppet-on-linux
- Puppet Homepage: puppet-homepage
- Testing Puppet's custom facts with RSpec: puppet-rspec

Capistrano

Capistrano is a utility and framework for executing commands in parallel on multiple remote machines, via SSH. It uses a simple DSL (borrowed in part from Rake) that allows you to define tasks, which may be applied to machines in certain roles. It also supports tunneling connections via some gateway machine to allow operations to be performed behind VPN's and firewalls. Capistrano was originally designed to simplify and automate deployment of web applications to distributed environments, and originally came bundled with a set of tasks designed for deploying Rails applications.

- Capistrano Homepage: capistrano-homepage
- Webistrano Homepage (Capistrano's web GUI): webistrano-homepage

Fabric

Fabric is a Python (2.5 or higher) library and command-line tool for streamlining the use of SSH for application deployment or systems administration tasks. It provides a basic suite of operations for executing local or remote shell commands (normally or via sudo) and uploading/downloading files, as well as auxiliary functionality such as prompting the running user for input, or aborting execution.

Fabric Homepage: fabric-homepage

Ubuntu's juju

- juju used for Jenkins deployment: juju-jenkins

Glu

Glu takes a very declarative approach, in which you describe/model what you want, and glu can then:

- compute the set of actions to deploy/upgrade your applications
- ensure that it remains consistent over time
- detect and alert you when there is a mismatch

Glu Homepage: glu-homepage

Ansible

It turns out, that about the same time I did look around, a new alternative was launched called Ansible, written in Python. I haven't done a lot with it yet. But I really like what I've seen so far, and the design principles really resonates with me. The easiest config management system to use, ever. Requires no software to be installed on the remote box for bootstrapping Idempotent modules (although you can choose whether or not to have this for your own modules) I think the author Michael DeHaan sums it up really good in this interview:

- Successfully automating your machines in the cloud using Ansible: automating-with-ansible
- Ansible thoughts: ansible-thoughts
- Ansible's View on IT Automation: ansible-automation
- A look at Ansible: look-at-ansible

Chef

- Using Test Doubles in ChefSpec: stubs-and-doubles

Nix

Nix Homepage: nix-homepage

- Why Puppet/Chef/Ansible aren't good enough: nix-vs-other

Gunnery

Gunnery is multipurpose task execution tool for distributed systems: gunnery-homepage

Rundeck

Rundeck Homepage: rundeck-homepage

Docker

- How to Set Up TravisCI-like Continuous Integration with Docker and Jenkins: docker-jenkins-github
- Docker Misconceptions: **docker-misconceptions_**
- 8 Ways to Use Docker in the Real World: 8-ways-to-use-docker

- Will the future be Dockerized?: docker-future
- Docker Networking: docker-networking
- Robust Containers: robust-containers
- Building the best Open Source Community in the World: community-docker
- How We Use Docker For Continuous Delivery: use-docker-continuous-delivery
- Dockerizing a Python Web App: dockerizing-python
- Using Docker & Ansible by John Minnihan: using-docker-ansible
- Docker Misconceptions: **docker-misconceptions_**
- Docker as a framework for your DevOps culture: docker-as-framework
- Docker Homepage: docker-homepage
- Create a Python 3 environment using Docker: python3-docker
- So you're building a Docker image. What might be wrong with it? baseimage-docker

Network

- Cisco - Image Hosting Service Implements Flexible Cloud Infrastructure: cisco-salt
- Automation for Network Engineers: automation-for-network

Scaling

- Autoscaling Best Practices: autoscaling-best-practices

2.1.6 Release Management

Best Practices

- The 10 Commandments of Release Engineering: ten-commandments
- Release Management Best Practices: release-best-practices

Articles

- Facebook: Moving to mobile: The challenges of moving from web to mobile releases: mobile-releases
- Stop Blaming Release Management: stop-blaming-rm
- So, What Is It We Do Again?: what-we-do-again
- Software Release Management Best Practices: release-best-bractices
- Guidelines for building monolithic release management system: release-guidelines
- Release Trends 2013 by XebiaLabs: release-trends-2013
- Ubuntu no switching to rolling releases: ubuntu-switch

Naming Conventions

Versioning

Most common model:

- X.0 for Major releases
- X.X.0 for minor releases
- X.X.X.0 for patches that don't include functionality updates.
- X.X.X.X for security and/or emergency patches.

Given a version number MAJOR.MINOR.PATCH, increment the:

- MAJOR version when you make incompatible API changes,
- MINOR version when you add functionality in a backwards-compatible manner, and
- PATCH version when you make backwards-compatible bug fixes.

Additional labels for pre-release and build metadata are available as extensions to the MAJOR.MINOR.PATCH format.

Other models:

- Python: python
- Git 1.9 Versioning: git-1.9-versioning
- Gnome Versioning: gnome-versioning
- Maven Versioning: maven-versioning
- Semantic Versioning 2.0.0: semantic-versioning

Tools

Gitver

A very simple, lightweight, tag-based version string manager for git, written in Python.

Homepage: https://github.com/manuelbua/gitver

2.1.7 Deployment Management

Best Practices

1. Deployment process is fully automated
2. Rollback process is fully automated
3. Deployment should be unnoticed by users (invisible upgrades)

Articles

- Consider Deployment Automation to Add Business Value Faster: deployment-automation

Deployment Methodologies

Invisible Deployment

- Deploying Python without a downtime: deploying-python

Torrent based Deployment

Torrent methodology is used by Facebook and Twitter and becomes a standard for large scale web sites, below you can read more about this:

Facbook and Torrent deployments:

- facebook-torrent1
- facebook-torrent2
- facebook-torrent3
- facebook-torrent4
- facebook-torrent5
- facebook-torrent6
- facebook-torrent7

2.1.8 Continuous Integration

Articles

- Delivering eBay's CI Solution with Apache Mesos: ebays-ci-solution
- Continuous Integration for Infrastructure: ci-for-infrastructure
- PyGrunn: Advanced continuous integration: advanced-ci
- Continuous integration with travis and coveralls.io for Django apps: travis-and-django
- Continuous integration versus delayed integration: continuous-integration-versus
- Holistic view of Continuous Integration & Build: holistic-ci

Tools

Drone

- Homepage: drone-github
- Annoucenment: open-source-docker

Jenkins

- A lot of interesting movies and slides: slides-2012
- 7 Habbits of highly effectie Jenkins users: seven-habbits

Nix

- Nix is a purely functional package manager: nix-homepage

Links

- http://peter.gillardmoss.me.uk/blog/2013/12/20/machine-images-as-build-artefacts/

2.1.9 Continuous Delivery

Tools

- Go Open Source - Continuous Delivery: go-homepage

Articles

- A skeptic's guide to continuous delivery: skeptics-guide-continuous-delivery
- Continuous Delivery Testing: continuous-delivery-testing
- Practical continuous deployment: continuous-deployment
- Five Reasons Jenkins is not a Pipeline Orchestration Framework: jekins-is-not-orchestration-framework
- Why should your organization automate and adopt Continuous Delivery? why-automate
- Automation Trends Xebialabs: automation-trends
- The next Jenkins: delivery-pipeline
- DevOps & Continuous Delivery: The Need for Speed: the-need-for-speed
- DevOps Improves Time to Market – and Revenue: devops-time-to-market
- Configuration Management for Continuous Delivery: cm-for-cd1 and cm-for-cd2
- Continuous Delivery is Mainstream: cd-mainstream

Youtube

- Implementing Continuous Delivery at Yahoo: continuous-delivery-yahoo
- PIPELINE - the Continuous Delivery conference: cd-conference
- Continuous Delivery at SAP: cd-in-sap
- Designing Continuous Delivery Into Your Platform by John Simone: cd-into-platform

2.1.10 DevOps

Best Practices

- Best practices for a DevOps approach with IBM: best-practices-with-ibm
- 6 Elements of Highly Successful DevOps Environments: divingintodevops
- DevOps Best Practices: Finding the Right Tools: devops-tools

- Top 10 Practices for Effective DevOps: top-ten-practices
- DevOps = DevOps Principles + DevOps Practices: devops-principles

Propaganda

- DevNation 2014 – Gene Kim Afternoon Keynote: Why Everyone Needs DevOps Now: why-everyone-needs-devops
- Need for DevOps is Growing: need-for-devops

What is DevOps

- What's Trending with DevOps Tools: A Study Using Google: devops-tools-trending
- A Generalized Model for Automated DevOps: automated-devops
- Digging Deeper into DevOps: digging-deeper-devops
- What is DevOps? 3 progressively broader perspectives: what-is-devops
- DevOpsFriday5-with-Craig-Pearson: devopsfriday5
- Deciphering DevOps: deciphering-devops
- No, You Are Not a DevOps Engineer: devops-enginner
- DevOps in Straight English: devops-straight-english
- DevOps: Can we automate our way to Business and IT Alignment?: devops-flickr

DevOps and Security

- Security considerations for DevOps adoption: security-considerations
- Token Management: **vault_project_**

DevOps and ITIL

- DevOps and ITIL: Continuous Delivery doesn't stop at software: devops-and-itil
- How to Modify ITIL to Accommodate DevOps: itil-devops

DevOps and Culture

- DevOps: Tools Vs Culture: tools-vs-culture
- The Divisiveness Of The Term "DevOps Culture": devops-culture

DevOps and Enterprise

- Labeling DevOps Hurts the Movement: labeling-devops-hurts
- Common Objections to DevOps from Enterprise Operations: devops-enterprise-operations
- DevOps isn't viable for enterprise? Tell that to IBM: **devops-enterprisese-ibm_**
- Can Devops work in the enterprise?" is the wrong question!: can-devops-work-enterprise

- DevOps Is Great for Startups, but for Enterprises It Won't Work—Yet: devops-for-enterprises
- DevOps Myths: devops-myths
- Big Enterprises Need Big DevOps: enterprises-need-devops
- DevOps vs The Enterprise: devops-vs-the-enterprise

Articles

- A practical guide to anomaly detection for devops: devops-anomaly-detection
- How 'DevOps' is Killing the Developer: devops-killing-developer
- Why Vagrant is the Best DevOps Tool Ever: vagrant-devops-tool
- Implementing DevOps in Large Complex Organizations: An Interview with Mike Baukes: devops-large-organizations
- Seven Habits of Highly Effective DevOps: seven-habits
- The DevOps Movement fits perfectly with ITSM: devops-itsm
- Red Hat IT Begins Its DevOps Journey: redhat-devops
- DevOps Kata - Single Line of Code: devops-kata
- What if Everything We've Been Doing is Wrong? everything-is-wrong
- DevOps: Self-Service: devops-self-service

DevOps and Robotics

- The Rules of RobotOps: robotops

DevOps and Microsoft

- Devops the Microsoft Way: devops-microsoft

Containerization

- Using Containers for Continuous Deployment: using-cointainers
- Demonstration of realtime Linux container autoscaling: force12

LXC

- Userspace tools for the Linux kernel containers: lxc-homepage

Break down the silos

- Destruction of silos is all the rage in DevOps: destruction-of-silos
- The leaning of life - History of the Silos: leaning-life-silos

DevOps History

- DevOps History: devops-history

Links

- http://www.infoq.com/articles/devops-04-large-bank
- http://blog.howareyou.com/post/62157486858/continuous-delivery-with-docker-and-jenkins-part-i
- http://blog.devopsguys.com/2013/12/19/the-top-ten-devops-operational-requirements/
- http://kief.com/infrastructure-as-code-versus-automation.html
- http://blog.ingineering.it/post/72964480807/empathy-the-essence-of-devops
- http://www.slideshare.net/devopsguys/dev-opsguys-devops-101-for-recruiters
- http://dave.cheney.net/2014/01/23/what-did-devops-mean
- http://blog.lusis.org/blog/2013/06/04/devops-the-title-match/
- https://www.kickstarter.com/backing-and-hacking/hierarchy-of-devops-needs
- https://community.servicenow.com/community/learn/blog/2014/01/20/devoops-we-did-it-again-what-devops-should-learn-from-itil

2.1.11 Automation

TODO

See also:

This topic overlaps with Infrastructure Orchestration chapter which you can find here: infrastructure-orchestration

2.1.12 Testing

Best Practices

1. Fail constantly to verify if all the automated failover solutions are working properly.

Articles

- Continuous Delivery - Continuous Testing: continuous-testing
- PyGrunn: Sphinx plus Robot framework: robot-sphinx

Tools

Chaos Monkey

Motto: The best way to avoid failure is to fail constantly

- Chaos Monkey Homepage: chaos-monkey-homepage

Robot Framework

- Robot Framework Homepage: robot-framework-homepage
- An Introduction to Test Automation Design: RFArticle.pdf

GWT

- Testing methodologies using GWT: testing-methodologies-gwt
- Google Web Toolkit and ID: google-webtoolkit-id

2.1.13 Monitoring

KPIs

Development KPIs

- Lines of code per developer
- Build test failures
- Unit test failures
- Number of bugs found in their code
- Number of bugs fixed
- Actual time to finish a task based against their own estimate
- Number of developers and commits by organization, site or country (Bangalore, Brugge)
- Number of revisions merged per contributor
- Number of revisions abandoned per contributor
- Number of revisions merged per organization, site, country
- Number of revisions abandoned per organization, site, country
- Ratios merged/abandoned
- Number of new contributors with 1 / 2-5 / 6+ changes submitted in the past 3 months
- Number of contributors stopping contributing or decreasing continuously in the past 3 months.

Gerrit KPIs

- Number of Code review comments
- Average time spent on Code Review
- Number of commits reviewed in <2 days, <1 week, <1 month, <3 months, >3 months or unreviewed
- Code Review queue size
- How many new users registered (per day, per month, per year)
- Average time for an accepted bug report between bug creation date and PATCH_TO_REVIEW status being set

- Average time for an accepted bug report between PATCH_TO_REVIEW status being set and RESOLVED FIXED status being set.
- Average time for an accepted bug report between bug creation date and first comment by not the reporter her/himself.

SCM Team KPIs

- Time to set up an environment
- Time from change request to release
- Mean time to resolution

Deployment KPIs

- Speed of deployment
- Deployment success rate
- How quickly service can be restored after a failed deployment

Articles

- DevOps Monitoring Tools: devops-monitoring-tools
- 5 KPIs that Make the Case for DevOps: puppet-kpis
- Best practices for greater business agility: devops-bestpractices

Tools

Statuspage

- Statuspage Homepage: statuspage-homepage

Nagios

- Stop using Nagios - Andy Sykes: stop-using-nagios1 + stop-using-nagios2
- Nagios is not the problem: keep-using-nagios1 + keep-using-nagios2

Cacti

Cacti is a complete network graphing solution designed to harness the power of RRDTool's data storage and graphing functionality.

- Cacti Homepage: cacti-comepage

Articles

- 10 Things We Forgot to Monitor: 10-things-to-monitor
- What we learnt talking to 60 companies about monitoring: what-we-learnt

Service Discovery

- Open-Source Service Discovery: **service-discovery-in-the-cloud_**
- Service Discovery Solutions: **service-discovery-solutions_**

„ _service-discovery-in-the-cloud: http://jasonwilder.com/blog/2014/02/04/service-discovery-in-the-cloud/ .. _service-discovery-solutions: http://www.activestate.com/blog/2014/05/service-discovery-solutions

Books

- Nagios: Building Enterprise-Grade Monitoring Infrastructures: josephsen-nagios-monitoring

Examples

- Github New Status Site blog entry: github-statuspage-blog
- Github Productive Status Page: github-statuspage
- Heroku Statuspage: heroku-statuspage
- Travis Statuspage: travis-statuspage

Dashboards

- Hygieia: hygieia
- Dashing: dashing
- Demo: dashing-demo

Comamnd Line Tools

- SAR Homepage: sar-homepage

2.1.14 CMDB

CMDB - Configuration Management DataBase

CMS - Configuration Management System (ususally providing some web interface and built on top of CMDB)

Articles

- Blog about CMDB implementation: cmdb-implementation
- Top 10 reasons NOT to implement CMDB: why-not-to-implement-cmdb
- The CMDB boundary problem: cmdb-boundary-problem
- What is the purpose of a CMDB? purpose-of-cmdb
- Why you should never have a CMDB project? why-you-should-never-have-cmdb

Migrations

From ANY CMDB to Django CMDB

Django insepctdb module allows you to migrate from an old CMDB engine to a new one (Django based) within an hour.. Below you can find two examples presenting the idea:

http://www.ianlewis.org/en/administer-wordpress-django-admin http://labs.freehackers.org/projects/djangoredmineadmin

Tools

Ralph

Open source CMDB implementation with Hardware focus (Django + Python + Celery)

Home Page: https://github.com/allegro/ralph/blob/master/doc/cmdb.rst

2.2 Other SCM Resources

2.2.1 Books

Amazon

Software Configuration Management

- Configuration Management Best Practices: Practical Methods that Work in the Real World: scm-best-practices

DevOps

- What is DevOps?: what-is-devops
- Continuous delivery and DevOps: A Quickstart Guide: continous-delivery-devops
- The Phoenix Project: A Novel About IT, DevOps, and Helping Your Business Win: phoenix-project

CMDB

- The CMDB Imperative: How to Realize the Dream and Avoid the Nightmares: cmdb

Continuous Delivery

Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation: continuous-delivery

Free

- Application Release and Deployment For Dummies: ibm-for-dummies
- Great database of free books about Software Development (all languages): free-programming
- the Architecture of Open Source Applications: open-source-architecture

2.2.2 Websites

- CM Crossroads: http://www.cmcrossroads.com/
- dev2ops - Delivering Change in a DevOps and Cloud World: http://dev2ops.org/
- DevOpsAudit Community: devops-audit

2.2.3 Video

- Facebook's Change Management: facebook-change-management
- Development at Google: development-at-google

2.2.4 SCM Fun

Youtube

- DevOps in a Box: devops-in-a-box
- Hitler uses git: hitler-git
- DevOps - Monty Python: devops-monty-python

Websites

DevOps Reactions

- http://devopsreactions.tumblr.com/post/38296984861/after-reading-the-pro-git-book
- http://devopsreactions.tumblr.com/post/36802261557/when-a-new-hire-asks-whether-he-should-use-git
- http://devopsreactions.tumblr.com/post/48919199787/initial-git-training
- http://devopsreactions.tumblr.com/post/50800607139/how-an-svn-user-sees-git-workflow
- http://devopsreactions.tumblr.com/post/52530748070/merging-your-own-pull-request
- http://devopsreactions.tumblr.com/post/71835012718/hot-fixing-live-environment
- http://devopsreactions.tumblr.com/post/72651016161/realizing-i-ran-the-command-on-the-wrong-server
- http://devopsreactions.tumblr.com/post/77162384009/setting-up-new-host-with-puppet-or-chef

2.2.5 Motivation

Youtube

- John Cleese on criticism of his Fawlty Towers script: john-cleese
- 20 Things That Mentally Strong People Don't Do: strong-people-dont-do

2.3 Education

2.3.1 Certifications and Trainings

USA/Europe/Online

- Software Configuration Management Professional (SCMP): scmp
- Software Change, Configuration and Release Management: learningtree
- iNTCCM Certified Professional for Configuration Management: intccm
- The NDIA has a CDM certification course: ndia
- CMPIC Configuration Management Training & Certification: cmpic
- Software Engineering Institute - Configuration Management: sei
- ITIL/ITSM - Configuration Management: itil-itsm
- Institute of Configuration Management: icmhq

Poland

- Bottega IT Solutions: bottega

ITIL

- Free ITIL Foundation questions: free-itil

2.3.2 Failures

Real life examples

- Postmortem for outage of us-east-1: postmortem-for-outage
- GitHub: Denial of Service Attacks: github-dos
- Knight Capital Says Trading Glitch Cost It $440 Million: knight-capital
- Why was Pinball removed from Windows Vista?: pinball-windows
- Recovery of broken Gerrit Repositories - Wikimedia: recovery-gerrit-wikimedia
- Chicago Traiding System shutdown: chicago-traiding-shutdown
- Apple: apple

General issues with poor SCM

- Approved changes not incorporated
- "Minor" changes cause major problems
- Delayed or lag time in performance
- Suppliers deliver non-compliant products
- Unable to identify installed software versions
- Delivered products do not meet performance requirements
- Difficulty maintaining products
- Like-models with different configurations
- Constant changes without proper documentation
- Changes do not match current product/system configuration
- The latest version of engineering drawings cannot be found
- The wrong versions of the configuration items are being baselined
- A required change is implemented in the wrong version of the product
- The wrong version of the product/source code was tested or deployed
- The user is given documentation that doesn't support the version of the product they've received
- Cost increase in overall maintenance and operation
- un-ending blaming of "who's responsible for the failure" or who did not follow the procedures

2.3.3 Dictionary

- KISS - Keep It Simple, Stupied

2.4 Events

2.4.1 Upcoming Events

- Promise 2014: promise14
- DevOps Summit: devops-summit
- PIPELINE - The Continuous Delivery Conference: pipelineconf
- Real Agile Delivery with DevOps: qconlondon
- Wandisco - Subversion and Git Live 2014: wandisco-live
- Software craftmaship matters: craftmaship-matters

2.4.2 Passed Events

Surveys

2011

- Git User's Survey 2011: git-users-survey-2011

Reports

2012

- Subversion Live London 2012: subversion-live-london

2013

- DevOps Days Vancouver 2013 Retrospective: devopsdays-vancouver-2013

Recordings

2014

- FOSDEM Configuration Management: fosdem-2014

2.5 Python

2.5.1 Python

Propaganda

Popularity of programming language: https://sites.google.com/site/pydatalog/pypl/PyPL-PopularitY-of-Programming-Language

Python continues to grow slowly, and Perl continues its long decline. According to Google trends, the number of searches for Perl is 19% of what it was in 2004 source: http://www.drdobbs.com/jvm/the-rise-and-fall-of-languages-in-2012/240145800

Programming language popularity chart: http://langpop.corger.nl/

- Python is Now the Most Popular Introductory Teaching Language at Top U.S. Universities: python-universities

Testing

Pytest Introduction: http://pythontesting.net/framework/pytest-introduction/

Tutorials

http://www.jeffknupp.com/blog/2013/08/16/open-sourcing-a-python-project-the-right-way/

Distributing a Python command line application: http://gehrcke.de/2014/02/distributing-a-python-command-line-application

Advanced Python: http://scipy-lectures.github.com/advanced/advanced_python/index.html

Python Shortcuts for the Begginer: http://maxburstein.com/blog/python-shortcuts-for-the-python-beginner

Python exceptions: http://www.jeffknupp.com/blog/2013/02/06/write-cleaner-python-use-exceptions

Python execution model: http://www.jeffknupp.com/blog/2013/02/14/drastically-improve-your-python-understanding-pythons-execution-model/

Iterables, Iterators, Generators: http://excess.org/article/2013/02/itergen2/

Python best practices: http://www.youtube.com/watch?v=GZNUfkVIHAY

Static/Abstract methods: http://julien.danjou.info/blog/2013/guide-python-static-class-astract-methods

Django

An Architecture for Django Templates: https://oncampus.oberlin.edu/webteam/2012/09/architecture-django-templates

Migrating Django projects with fixtures: http://kuttler.eu/post/django-db-utils-IntegrityError-duplicate-entry/

Making a specific Django app faster: http://reinout.vanrees.org/weblog/2014/05/06/making-faster.html

Understanding Test Driven Development with Django: http://arunrocks.com/understanding-tdd-with-django

Starting a Django 1.6 Project the Right Way: http://www.jeffknupp.com/blog/2013/12/18/starting-a-django-16-project-the-right-way/

Web development with Django and Python: http://www.slideshare.net/mpirnat/web-development-with-python-and-django

Complete single server Django stack tutorial: http://www.apreche.net/complete-single-server-django-stack-tutorial/

Django & Gooogle App Engine: http://f.souza.cc/2010/08/flying-with-django-on-google-app-engine.html

Introduction to Django: http://gettingstartedwithdjango.com/en/lessons/introduction-and-launch/

Django + emails + Celery http://www.cucumbertown.com/engineering/scheduling-morning-emails-with-django-and-celery/

Django mailviews: https://github.com/disqus/django-mailviews?utm_source=Python+Weekly+Newsletter&utm_campaign=c15c89a350
Python_Weekly_Issue_75_February_21_2013&utm_medium=email

Sphinks + Github: http://raxcloud.blogspot.de/2013/02/documenting-python-code-using-sphinx.html

Django Best Practices: http://lincolnloop.com/django-best-practices/

Fixing Database Connections in Django: http://craigkerstiens.com/2013/03/07/Fixing-django-db-connections

Deploying Django with Saltstack: http://www.barrymorrison.com/2013/Mar/11/deploying-django-with-salt-stack/

Effective Django: http://effectivedjango.com

Serving static files with Django: http://agiliq.com/blog/2013/03/serving-static-files-in-django/

Getting started with Django: http://gettingstartedwithdjango.com/

Overloading Django Form Fields: http://pydanny.com/overloading-form-fields.html

Creating PostgreSQL database: http://od-eon.com/blogs/calvin/postgresql-cheat-sheet-beginners/

Django and sending emails: http://ozkatz.github.io/getting-e-mail-right-with-django-and-ses.html

Django and sending emails2: http://stackful-dev.com/django-email-tricks-part-1.html

Django and Salt: https://github.com/wunki/django-salted

Testing: http://www.realpython.com/blog/python/testing-in-django-part-1-best-practices-and-examples/

Links

- http://www.jeffknupp.com/blog/2013/12/18/starting-a-django-16-project-the-right-way/
- http://www.realpython.com/blog/python/kickstarting-a-django-open-source-project/#.UtlNhfQ1hok
- http://django-oscar.readthedocs.org/en/latest/releases/v0.6.html
- http://pedrokroger.net/getting-started-pycharm-python-ide
- http://fastml.com/why-ipy-reasons-for-using-ipython-interactively/

Books

Free Python Books: http://freecomputerbooks.com/search.html?cx=partner-pub-5976068913745703%3Ae0ybf3af0rc&cof=FORID%3A10&ie=ISO-8859-1&q=python&sa=Go

Cheatsheets

http://cheatography.com/davechild/cheat-sheets/python/

http://imgur.com/a/4Gmsj#0

http://media.revsys.com/images/django-1.5-cheatsheet.pdf

Tips & Tricks

Vim & Python: http://justinlilly.com/vim/vim_and_python.html

Creating .exe file for Python Package: http://www.linkedin.com/groupItem?view=&srchtype=discussedNews&gid=25827&item=180400anet_dig-b_pd-ttl-cn&ut=2hf0nMUasLT5s1

Other

Sphinx

Using Sphinx to write books: http://pedrokroger.net/2012/10/using-sphinx-to-write-books/

2.6 Linux

2.6.1 Linux

https://github.com/kahun/awesome-sysadmin

Scalability

http://highscalability.com/blog/2013/4/15/scaling-pinterest-from-0-to-10s-of-billions-of-page-views-a.html

Hadoop

Installing Hadoop on Ubuntu 12.04: http://yogeshblogger.blogspot.de/2012/10/installing-hadoop-on-ubuntu-1204-single.html

Running Hadoop on Ubuntu Linux Single Mode: http://www.michael-noll.com/tutorials/running-hadoop-on-ubuntu-linux-single-node-cluster/

Writing an Hadoop Mapreduce program: http://www.michael-noll.com/tutorials/writing-an-hadoop-mapreduce-program-in-python/

Usability

UX design for startups: http://uxpin.com/ux-design-for-startups.html

OS Architecture

Think OS is an introduction to Operating Systems for programmers: thinkos

Howtos/Tutorials

- Defensive BASH Programming: defensive-bash
- Aliens Bash Tutorial: http://www.subsignal.org/doc/AliensBashTutorial.html
- Buddha Wiki: http://www.bitbull.ch/wiki/index.php/Hauptseite

Virtualization

- Apache Mesos - cluster manager: mesos-homepage
- OSv is a new open-source operating system for virtual-machines: osv-homepage

Performance

- Socket Sharding in NGINX: socket-sharding

2.7 FAQ