

XPC-MW5 / 13. lekce

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Představení

- Ing. Martin Bružina
 - Software engineer @ ChyronHego
- Cloud / SaaS
 - Nadnárodní korporace i český startup
 - Developer, tester, ...
 - SysAdmin + DevOps + SRE
 - Scrum & Engineering Management

Dnešní přednáška:

- DevOps & SRE
- Docker live coding
- SW firmy

Co je DevOps a SRE

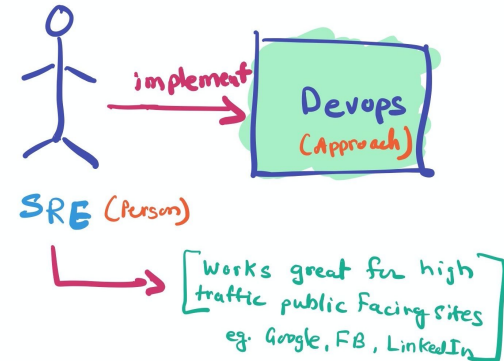
DevOps toolchains:

- Coding
- Building
- Testing
- Packaging
- Releasing
- Configuring
- Monitoring



SRE pillars:

- Reduce organizational silos
- Accept failure as normal
- Implement gradual changes
- Leverage tooling and automation
- Measure everything



DevOps & SRE landscape

Changes:

- CI
 - SCM, SCM host
 - CI
 - Formatters, linters, static code analysis
 - Testing (CI, nightly)
 - Artifactories & Repositories
- CD
 - Release, deploy (canary, A/B)
- Provisioning (ideally IaC)
 - Infrastructure
 - Platform
 - Services

Operations:

- Monitoring (biz, app, infra)
 - Metrics collection
 - Logs collection
 - Alerting
- Incident response
 - Alert = incident identification, escalation
 - Fix = investigation, resolution, recovery
 - Post-mortem = incident closure
- Management
 - On-calls
 - Trainings
 - Hiring, onboarding, people management

DevOps & SRE Environments

- Local (localhost)
- Development (dev, sandbox)
- Testing (QA)
- Staging (beta, UAT)
 - SLA 99... %
- Production (alpha)
 - SLA 99.99... %

SLA: 99% = 7h12'/m, 99.9% = 43'12"/m, 99.99% = 4"19"/m, 99.999% = 26"/m, 99.9999% = 2.5"/m

- 99.9999999999 = 10 B/TB/Y (AWS S3 Glacier), 100% = ???

Hlavní zásady DevOps i SRE

Co dělat:

- Automatizovat!
 - Automatizovat!
 - Automatizovat!
-
- Myslet na bezpečnost
 - Testovat
 - Měřit
-
- Vzdělávat se
 - Komunikovat

Co nedělat:

- Přehlížet problémy
- Nedostatečně měřit
- Potlačovat důsledky před řešením příčin
- Předčasně optimalizovat
- Zakládat práci do šuplíku

Q&A

Docker

Pros

- Industrial standard + community
- Well documented
- Very small overhead (x VMs)
- Suitable for microservices
- Immutable approach => consistency
- Easy setup, usage, build, delivery, automation, CI/CD

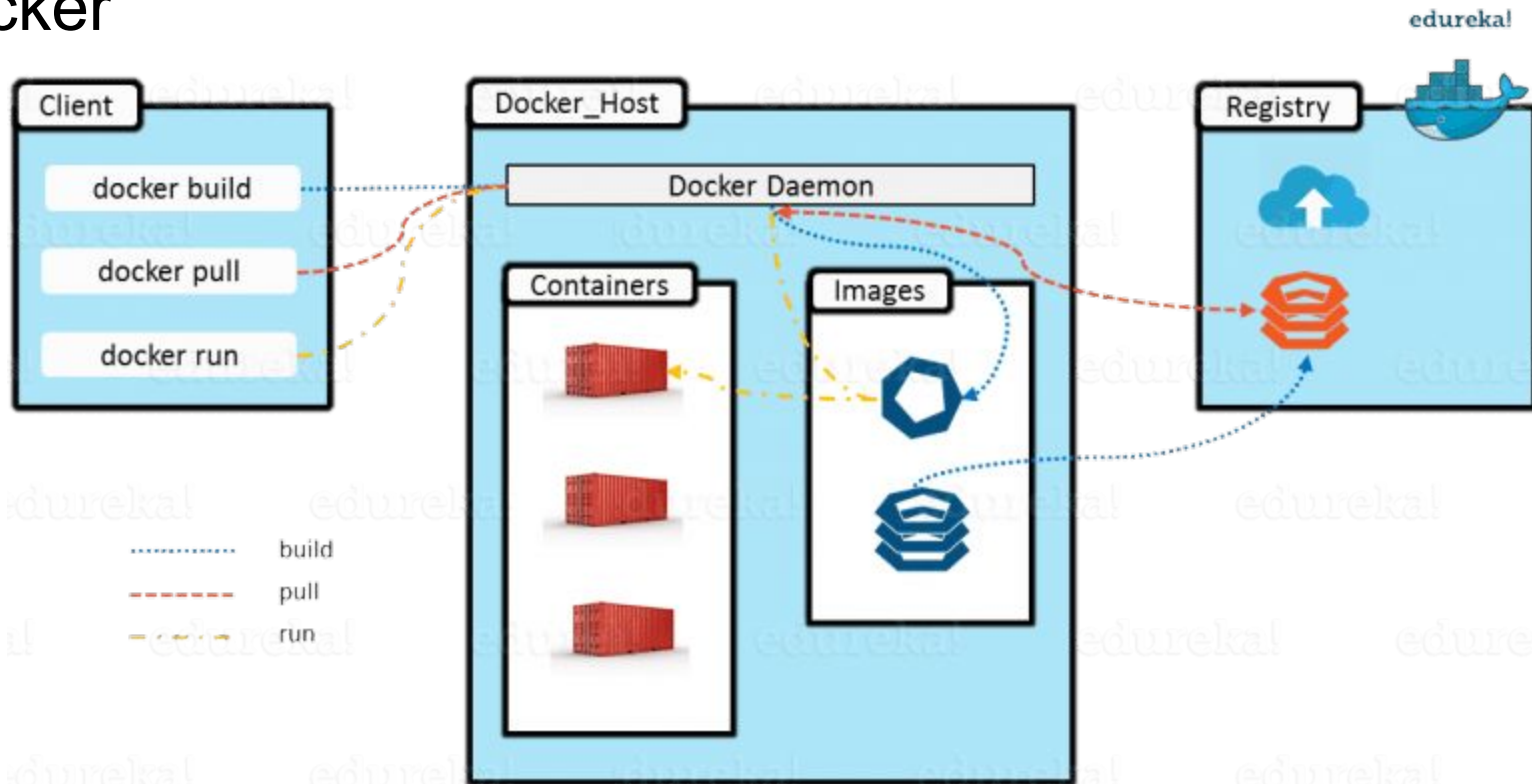
???

- Windows and Mac support, docs, performance
- IPv6 support not yet ready (for bridge network)
- Security - less isolation, better separation (x VM)

Cons

- Fragmented ecosystem
- Slow learning curve
- Bare metal is still slightly faster
- Not suitable for:
 - GUI apps (-> X11 fwd)
 - Apps using systemd (-> Podman)
 - GPU apps (-> nVidia Container Runtime)
- Not well suited for running alone (-> use orchestration & tooling: K8s, AWS ECS/EKS, MS AKS, GCP GKE, ...)
- Persistent storage, DBs, ingress (-> cloud provider services or on-prem alternatives)

Docker



Live coding time!

Q&A

The Behavior Effects

Create your own cartoon at www.projectcartoon.com



How the customer explained it



How the project leader understood it



How the analyst designed it



How the programmer wrote it



How the business consultant described it



How the project was documented



What operations installed



How the customer was billed



How it was supported



What marketing advertised



What the customer really needed



The Open Source version

Google:
software
tree swing

Jak funguje SW firma

Produktový vývoj

- Marketing
- Sales
- Customer Support (CS)
- Customer Experience (CX) / System Integration (SI)

- Product Management
- User Experience (UX)

- Engineering (Development, testing, operations, ...)

- Management
- Ops & Finances

Zakázkový vývoj

- Sales

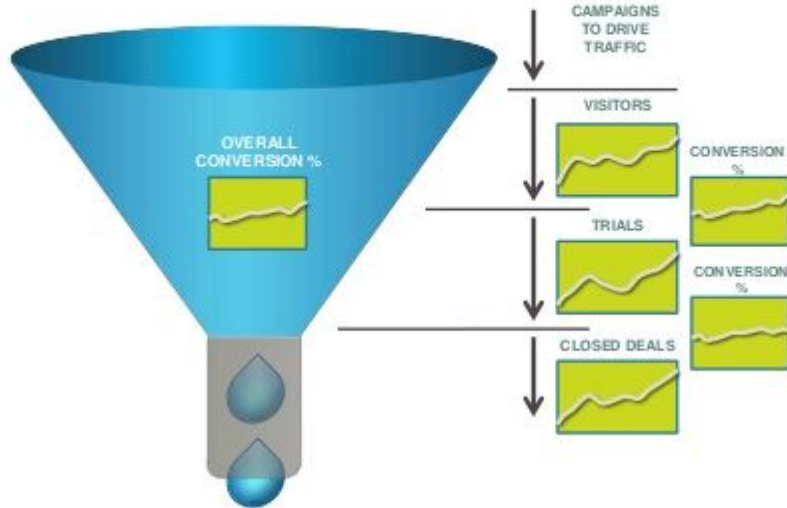
- Project Management (Business Analyst)

- Engineering (Development, testing, operations, ...)

- Management
- Ops & Finances

Velká korporace vs. startup

The Key Metrics



Děkuji za pozornost a těším se na otázky :-)