

Uni Web Topics Presentation

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Introduction

Contributing

Contributing

These study materials are heavily based on [professor Heuzeroth's "Spezielle Themen für Web-Anwendungen"](#) lecture at HdM Stuttgart.

Found an error or have a suggestion? Please open an issue on GitHub (github.com/poijntfx/uni-webtopics-notes):



Figure 1: QR code to source repository

If you like the study materials, a GitHub star is always appreciated

License

License



Figure 2: AGPL-3.0 license badge

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Overview

Overview

- ▶ What is DevOps?
- ▶ Which parts of the software lifecycle does it cover?
 - ▶ Development
 - ▶ Distribution (I will focus on this today)
 - ▶ Operation
- ▶ What is “cloud native”?
- ▶ Why are “traditional” distribution methods still relevant?

Development

Development

- ▶ DevOps: Also includes development!
- ▶ Modern development should not be bound to any client attributes
- ▶ It should not matter if the client is a RISC-V Linux machine, a locked-down Windows workstation or an Android phone
- ▶ Development should be possible from any platform, for any platform
- ▶ The only truly cross-platform application framework is the web
- ▶ PWAs make it possible for web apps to have all the features native apps have
- ▶ PWAs work offline by default
- ▶ Why not make our development environments PWAs?
- ▶ Virtual machines and user-friendly hypervisors and containers make it possible to run the editor's backend locally too

Distribution

Basic Distribution Principles

Basic Distribution Principles

- ▶ Binaries
- ▶ GPG signing and Gridge
- ▶ Cosign
- ▶ Portability
- ▶ Reproducibility
- ▶ Why we need more than “just binaries”

Pipelines

Pipelines

- ▶ Bagop
- ▶ Hydrun
- ▶ GitHub Actions
- ▶ Semantic Release

Distribution to RedHat Linux

Distribution to RedHat Linux

- ▶ RPM packages

Distribution to Debian GNU/Linux

Distribution to Debian GNU/Linux

- ▶ DEB package
- ▶ APT repository
- ▶ Yum repository

Distribution to Linux (universal)

Distribution to Linux (universal)

- ▶ Flatpak
- ▶ Flatpak repository

Distribution to Android

Distribution to Android

- ▶ APK
- ▶ F-Droid repository

Distribution to Windows

Distribution to Windows

- ▶ MSI package with auto-updates

Distribution to macOS

Distribution to macOS

- ▶ DMG package with auto-updates

Distribution to Kubernetes/the Cloud

Distribution to Kubernetes/the Cloud

- ▶ Docker
- ▶ Kubernetes
- ▶ Helm
- ▶ Skaffold

Distribution to WebAssembly

Distribution to WebAssembly

- ▶ WASM-Binary
- ▶ WASI/wasm_exec equivalents

Operation

Operation

- ▶ Sentry
- ▶ OpenTelemetry
- ▶ Prometheus
- ▶ Grafana