

# 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](https://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

- ▶ 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
- ▶ Source code can for example never leave the company's

## 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