### Uni Web Topics Presentation

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October 14, 2021

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### 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/pojntfx/uni-webtopics-notes):



Figure 1: QR code to source repository

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



#### License



Figure 2: AGPL-3.0 license badge

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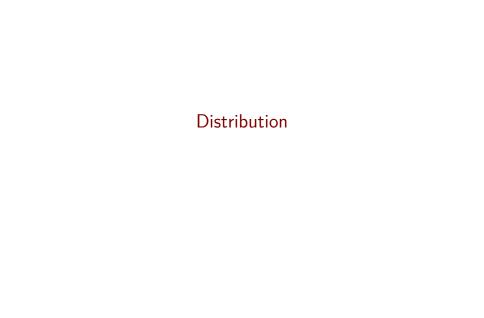
#### Overview

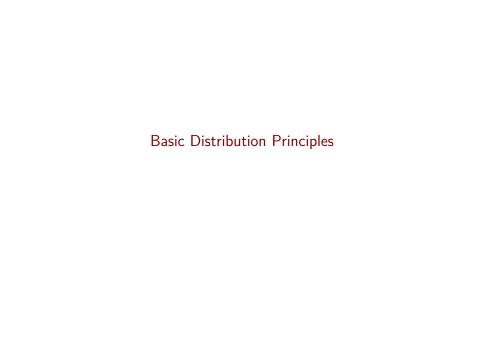
- ▶ What is DevOps?
- ▶ Which parts of the software lifecycle does it cover?
  - Development
  - Distribution (I will focus on this today)
  - Operation
- ▶ What is "cloud native"?
- Why are "traditional" distribution methods still relevant?



### Development

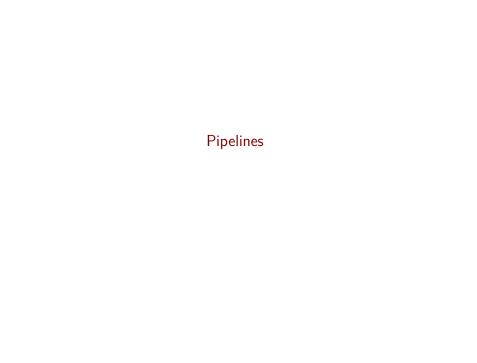
- DevOps: Also includes development!
- Modern development should not be bound to any client attributes
- It should not matter if the client is a RISC-V Linux machine, a locked-down Windows workstation or an Android phone
- Development should be possible from any platform, for any platform
- ▶ The only 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





### Basic Distribution Principles

- Binaries
- ► GPG signing and Gridge
- Cosign
- Portability
- Reproducibility
- Why we need more than "just binaries"



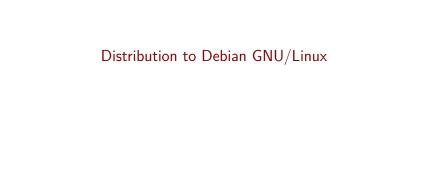
### **Pipelines**

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



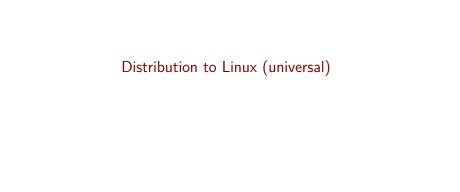
### Distribution to RedHat Linux

▶ RPM packages



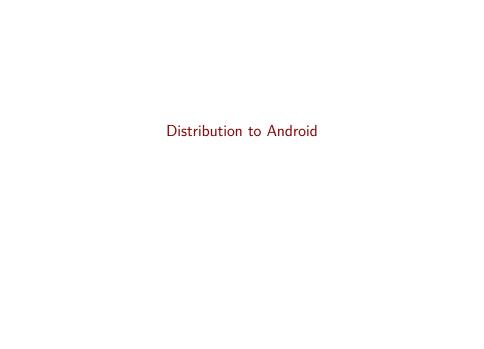
### Distribution to Debian GNU/Linux

- DEB package
- ► APT repository
- Yum repository



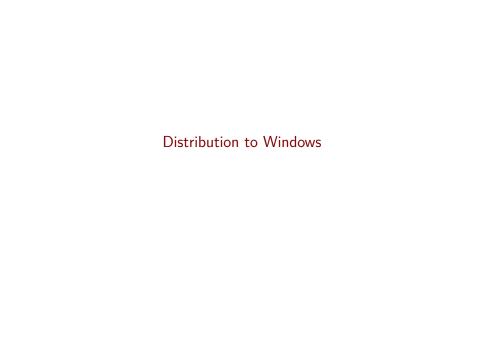
# Distribution to Linux (universal)

- ► Flatpak
- ► Flatpak repository



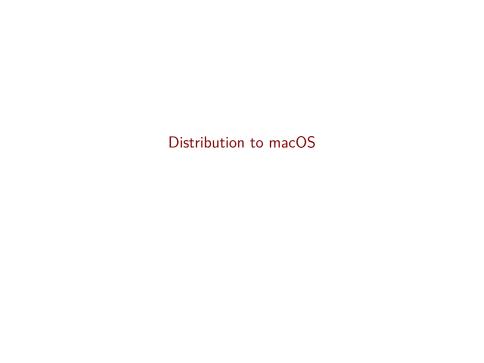
#### Distribution to Android

- **APK**
- ► F-Droid repository



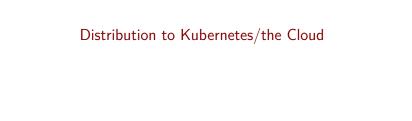
#### Distribution to Windows

► MSI package with auto-updates



#### Distribution to macOS

▶ DMG package with auto-updates



## Distribution to Kubernetes/the Cloud

- Docker
- Kubernetes
- Helm
- Skaffold



### Distribution to WebAssembly

- ► WASM-Binary
- ► WASI/wasm\_exec equivalents



## Operation

- Sentry
- OpenTelemetry
- ▶ Prometheus
- Grafana