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Angular Performance Optimization

Hosted by Alex Thalhammer

About me ...



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It's a me → LX T

- **Alex Thalhammer** from Graz, Austria (since 1983)
 - *Angular Software Tree GmbH* (since 2019)
- WebDev for 20+ years (I've come a long way baby)
- WordPress Dev (Web, PHP & jQuery, 2011 – 2017)
- **Angular Dev** (Web, TS, Rx since 2017 - NG 4.0.0 😊)
- **Angular Coach & Consultant** (since 2020)
 - Member of *Angular Architects*

<https://www.angulararchitects.io>



Tell us sth about yourself

- Hi, my name is ...
- I currently work on ...
- A good performance is ...
- My goal for the next 3 days is ...



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Pollings

- OS
 - Mobile OS?
- Browser
- IntelliJ/WebStorm vs VS Code
- npm vs yarn
- ?



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My Goals

Every participant should

- understand the ***importance*** of good performance
- know how to ***measure*** the performance
- know how to ***tweak*** the performance
- become a ***performance evangelist*** in her/his project/team/company



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We work together I

- Don't hesitate to interrupt me at **ANY TIME**
 - Questions
 - Especially during the **LABS**
 - Remarks
 - Also if you see any **typos** here 😊
- Somebody else might have the same question
 - Be a hero and ask it 😊



We work together II

- Remote: Please turn your camera on ***ALL THE TIME***
 - Necessary for me to get your feedback



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Timing C.E.(S.)T. (approximately)

- 14:30 Start
- 16:20 – 16:40 break (approximately)
- 18:30 End



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What is Performance?

- What would you say?
- **Web performance** refers to the speed in which web pages are downloaded and displayed on the user's web browser. **Web performance optimization (WPO)**, or **website optimization** is the field of knowledge about increasing web performance.
-- https://en.wikipedia.org/wiki/Web_performance



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Why Performance Optimization?

- According to *Facebook*, when people have to wait too long for a webpage to load, they're more likely to abandon the page all together.
- According to *Google*, 40% of visitors will abandon a website if it takes longer than 3 seconds to load
- According to *Amazon*, 0.1s less loading time results in around 1% more sales

Angular Performance Optimization

We distinguish between

- Initial load performance (classical web performance)
- Runtime performance (during usage, e.g. scrolling frame rate)

Didactics

Inputs

Discussion

Labs

Q&A

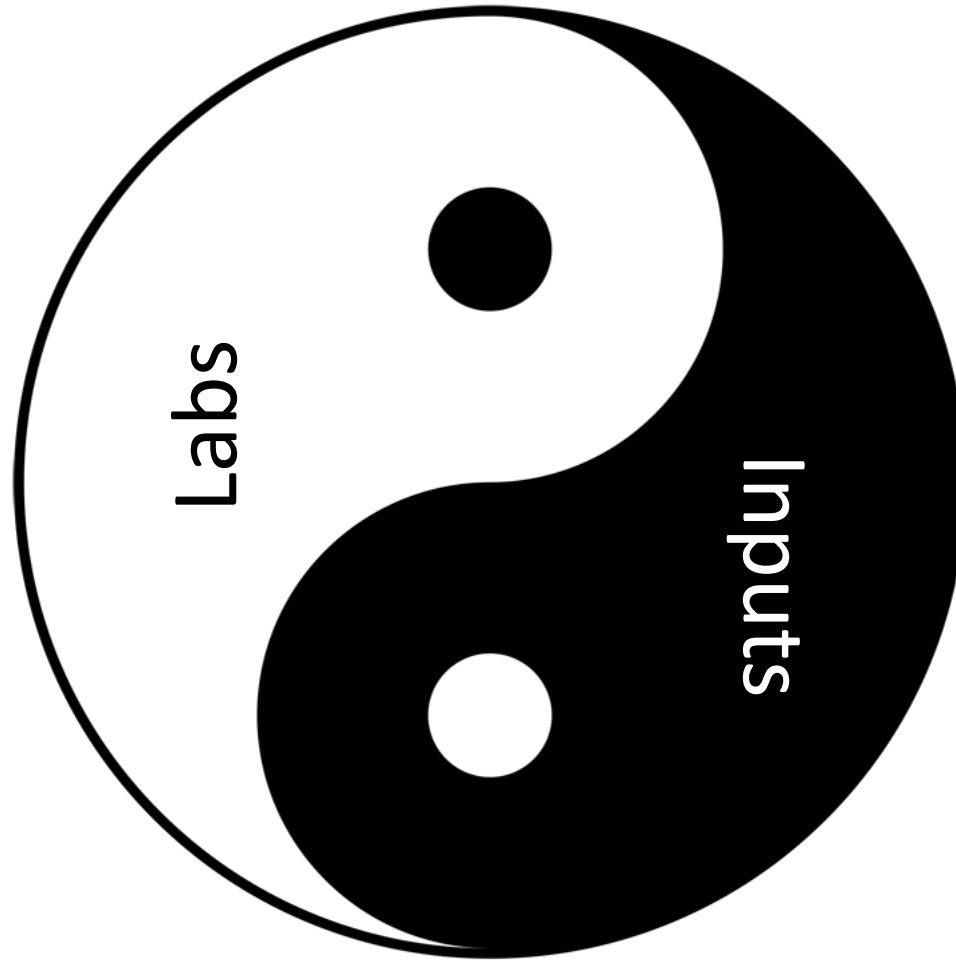


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Didactics



Topics

Intro, UAAO-
Framework &
Audit Tools

Runtime
Performance

Initial Load
Performance

Further Topics
& Future NG

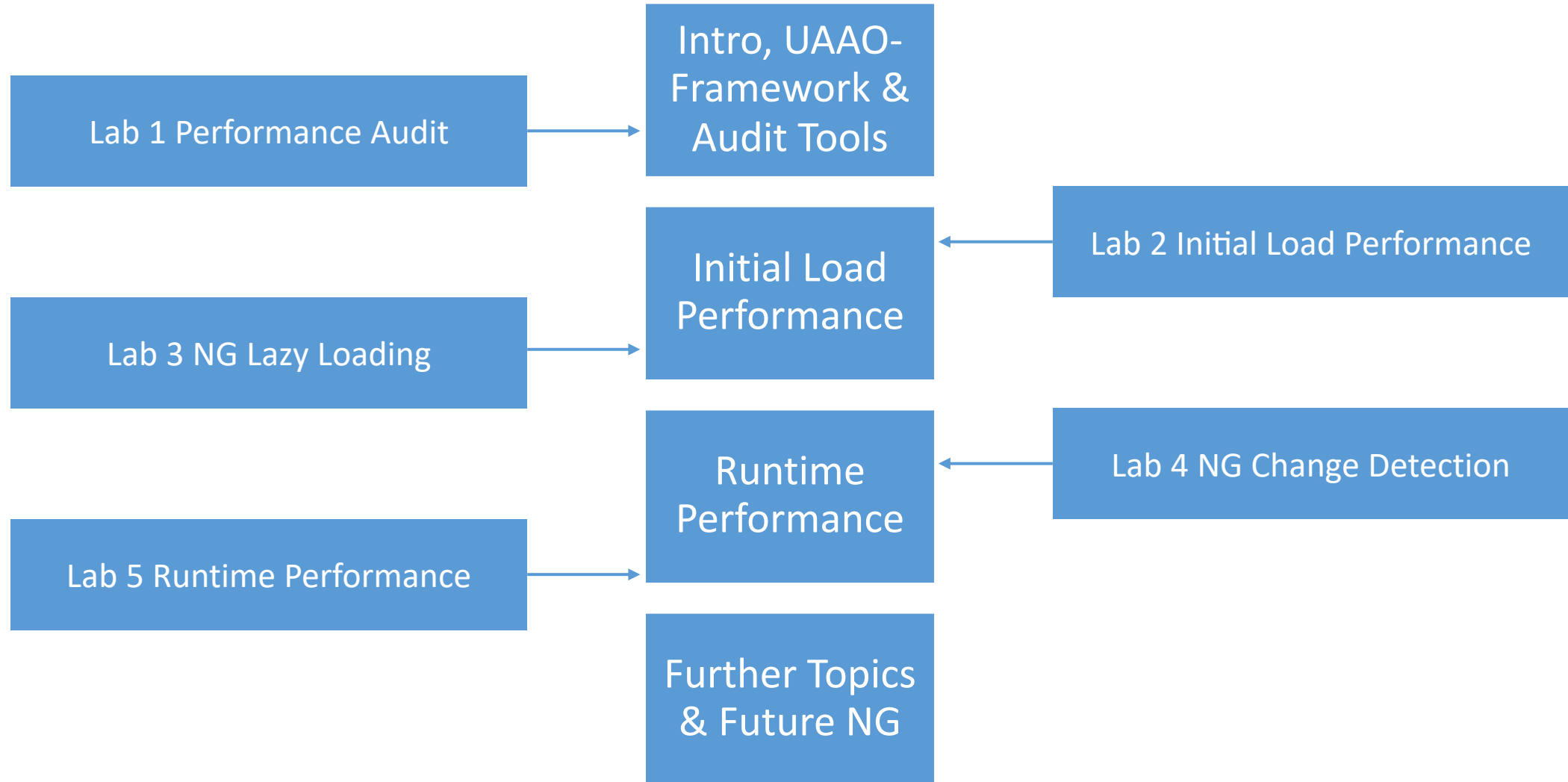


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Labs



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Ready for Takeoff!

- What are your questions?

Setup for Labs

- NodeJS (latest version 14.20.x, 16.13.x or 18.10.x)
- IDE: VS Code (free) or IntelliJ WebStorm (not free, but better)
 - IF 1. I'd be employed & 2. my employer would not pay for WebStorm license
 - THEN I'd buy it myself (~ 190€ / year, free for students)
 - BUT that's just *my* opinion, most other *Angular Architects* use VS Code
- Chrome (or Chromium based alternative)
 - other browsers are okay for private matters 😊

Recommendations

- Use prettier
 - especially for .ts files
- Use ESLint
 - in your IDE of choice and/or from terminal
- Use Git
 - we recommend to at least commit after every lab
 - easier switching back and forth with my solution

Starter Kit

- Incl. Slides
- And Labs (exercises)
- Clone or download from <https://github.com/L-X-T/ng-performance>



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Outline

1. UAAO Framework (**U**nderstand)
2. Audit Tools for Measurement (**A**udit)
3. Initial Load Performance (**A**nalyze & **O**ptimize)
4. Runtime Performance (**A**nalyze & **O**ptimize)
5. Further Topics & Feedback

Outline of 1st day

- Introduction, UAAO Framework
- Audit Tools
- Initial Load
 - Web Performance Best Practices
 - NgOptimizedImage
 - **Angular Lazy Loading**
 - SSR
- Runtime
 - **Angular Change Detection**
 - More runtime optimization
- Further Topics & Future NG

Outline of 2nd day

- Introduction, UAAO Framework
- Audit Tools
- Initial Load
 - Web Performance Best Practices
 - NgOptimizedImage
 - **Angular Lazy Loading**
 - SSR
- Runtime
 - **Angular Change Detection**
 - More runtime optimization
- Further Topics & Future NG

Outline of 3rd day

- Introduction, UAAO Framework
- Audit Tools
- Initial Load
 - Web Performance Best Practices
 - NgOptimizedImage
 - **Angular Lazy Loading**
 - SSR
- Runtime
 - **Angular Change Detection**
 - More runtime optimization
- **Further Topics & Future NG**