

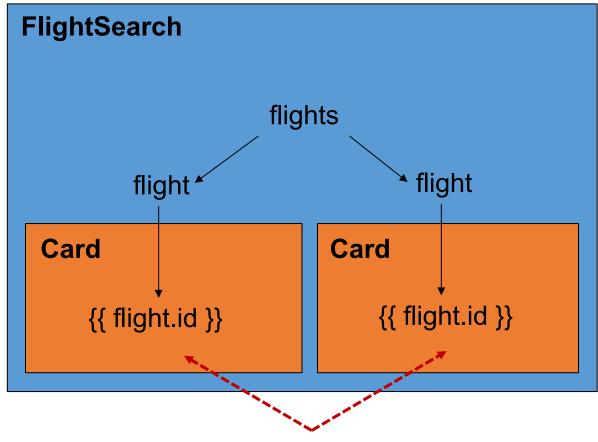


Performance-Tuning with OnPush

DEMO



OnPush



Angular just checks when "notified"



"Notify" about change?

- Change bound data (@Input)
 - OnPush: Angular just compares the object reference!
 - e. g. oldFlight === newFlight
 - Raise event within the component
- Notify a bound observable
 - {{ flights\$ | async }}
 - Trigger it manually
 - Don't do this at home ;-)
 - At least: Try to avoid this



Activate OnPush



DEMO



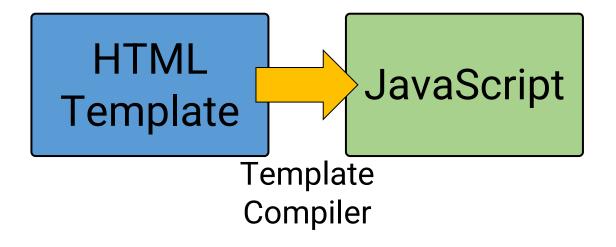
LAB



Ahead of Time (AOT) Compilation



Angular Compiler





Approaches

• JIT: Just in Time, at runtime

AOT: Ahead of Time, during build



Advantages of AOT

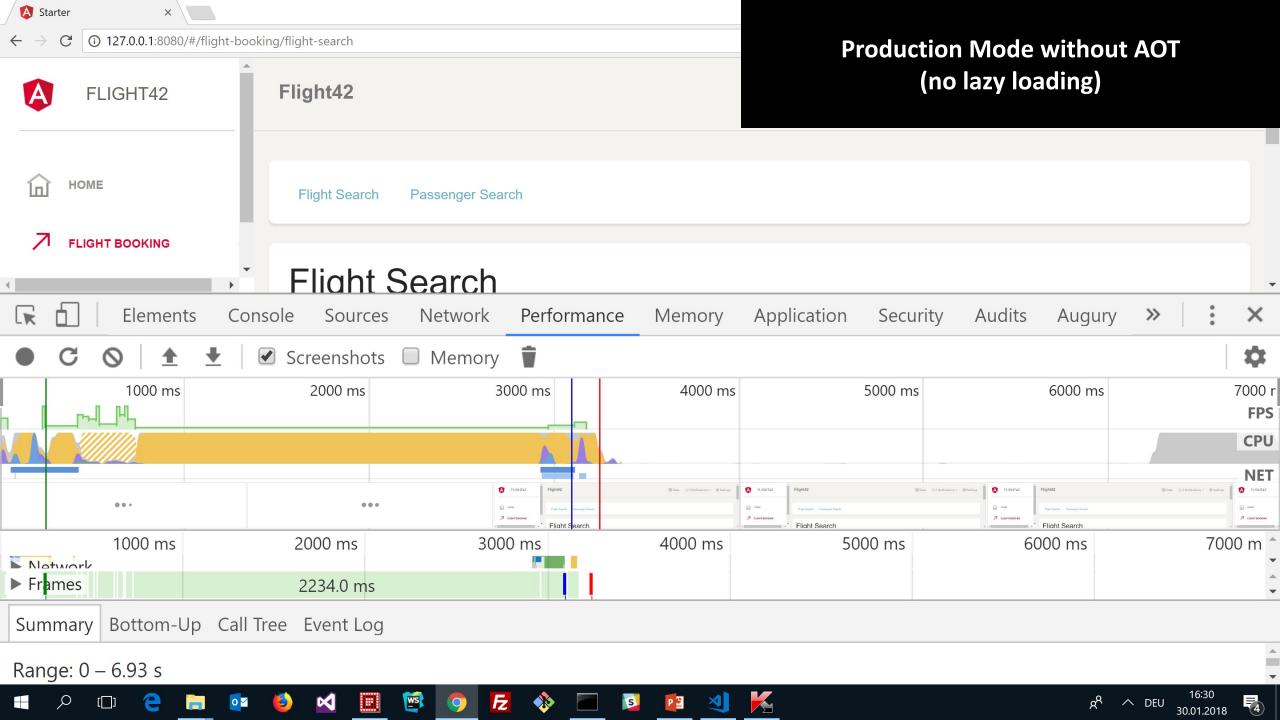
- Better Startup-Performance
- Smaller Bundles: You don't need to include the compiler!
- Tools can easier analyse the code
 - Remove unneeded parts of frameworks
 - Tree Shaking

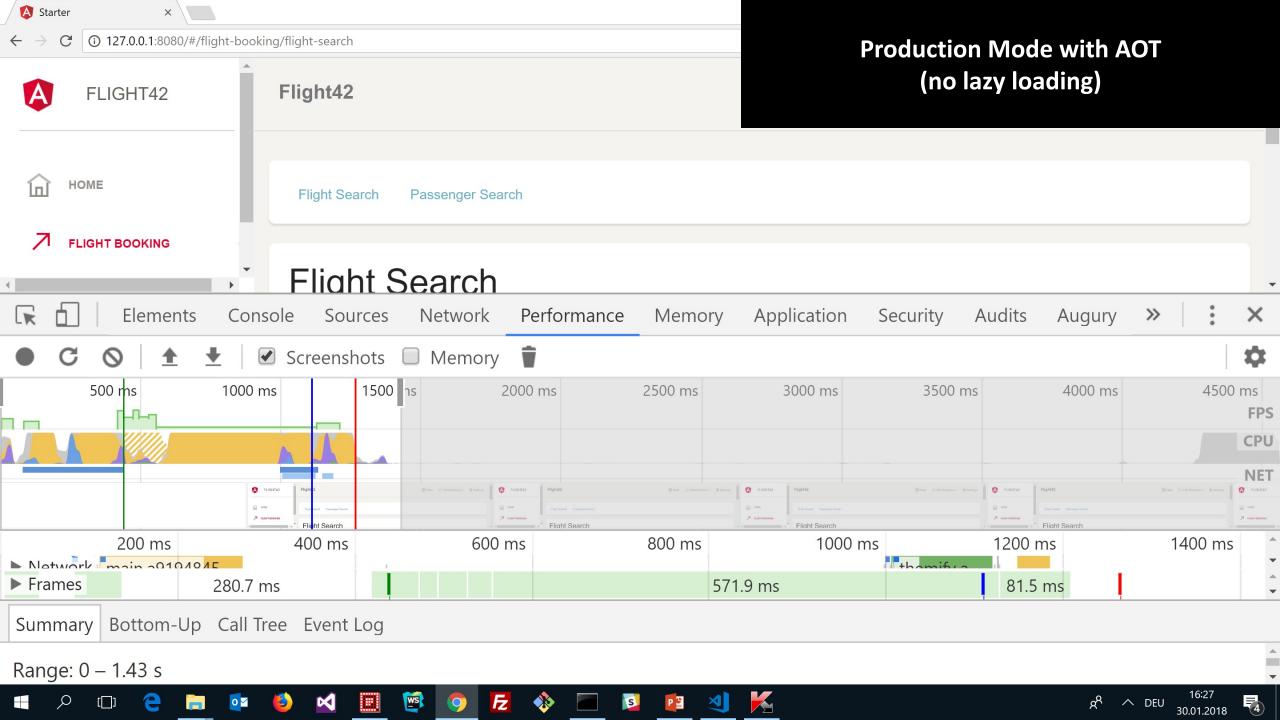


Angular CLI

- ng build --prod
- @ngtools/webpack with AngularCompilerPlugin
- Can be used without CLI too







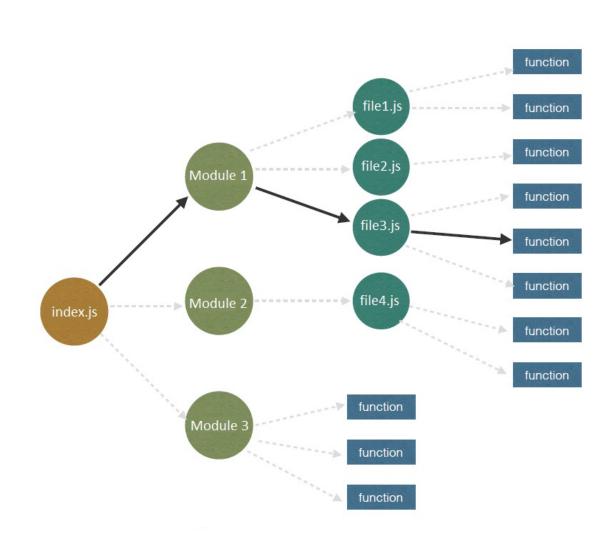
Ivy makes AOT the default ©

- Ivy also does a lot of under the hood optimization
- No breaking changes, nothing to do from our side ☺
- Angular ViewEngine itself was not tree-shakable
- Angular Ivy is tree-shakable ☺
- Default since NG 10, for libs default since NG 12



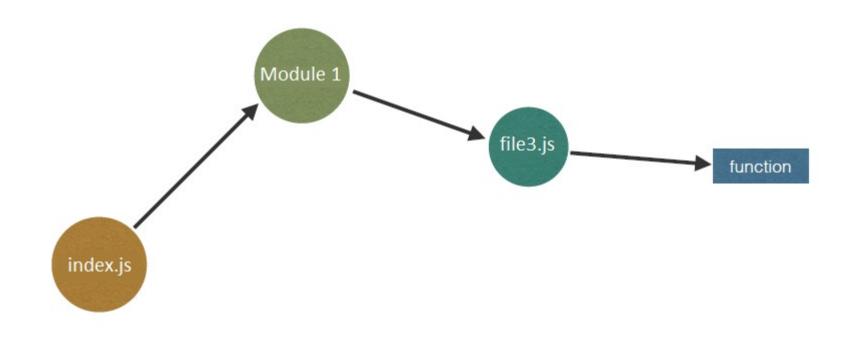
Tree Shaking

Before Tree Shaking



Tree Shaking

After Tree Shaking





Webpack Bundle Analyzer





C 127.0.0.1:8888

Bundles without AOT and Tree Shaking

vendor.978ac3ef762178ef4aa8.b

node_modules

JIT Compiler

@angular

platform-browser-dynamic esm5

platform-browser-dynamic.js + 1 modules

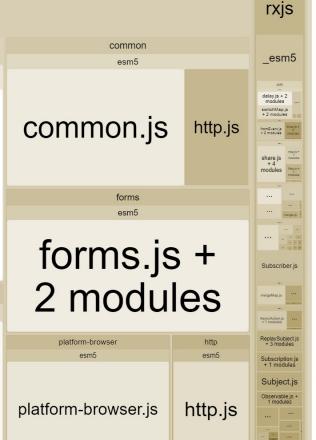


core

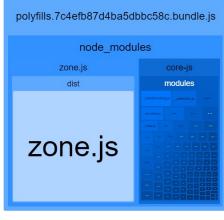
esm5

router esm5

router.js + 23 modules











Demo



Conclusion

Lazy Loading

Preloading

OnPush w/
Immutables and
Observables

AOT and Tree Shaking



For performance deep dive Watch this (starting at 8:30):

https://drive.google.com/file/d/15fmyedJPYSOIv_0YvFtg26XGS8tZpZ03/view

Repo: https://github.com/jeffbcross/victor-videos/

