

JIT → JUST-IN-TIME COMPILERS

JAVASCRIPT
ENGINE + MONITOR/
PROFILER

(frequency and type)

WARM

VERY
HOT

INTERPRETER

BASELINE
COMPILER

OPTIMISED
COMPILER

Segment
becomes
WARM after
running a
few times.

Segment
becomes
hot when
running too
frequently

Creates a
faster version
of the code

EXAMPLE OF
OPTIMIZATION

↓
TYPE
SPECIALIZATION

Compiled to

stubs.

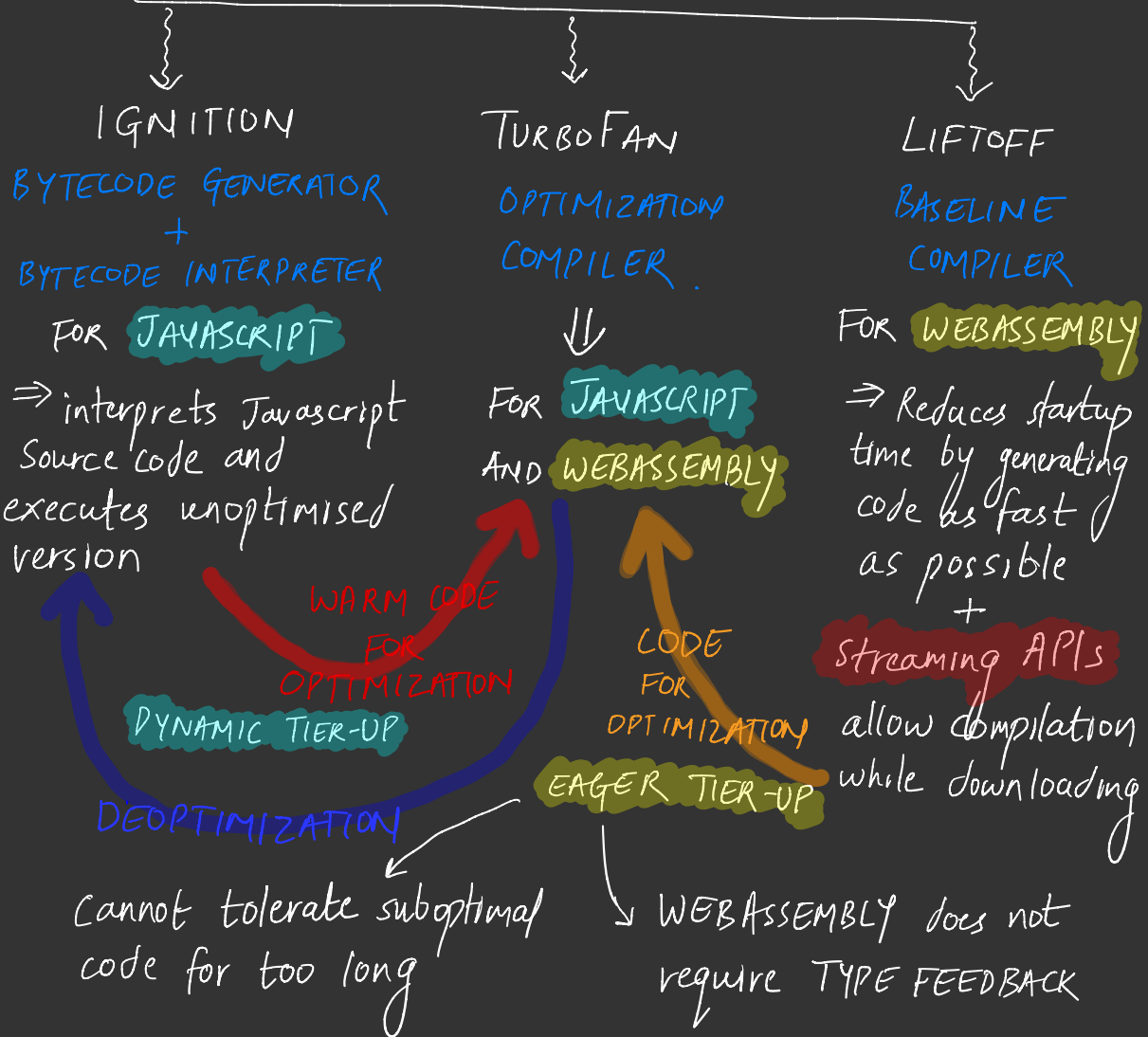
(Line number +
Variable type)

MULTIPLE FOR
MANY TYPES

+
Assumptions!

Deoptimization.
(Can be slower if
happens too frequently)

V8 → GOOGLE'S OPEN SOURCE HIGH PERFORMANCE JAVASCRIPT AND WEBASSEMBLY ENGINE



EAGER TIER-UP: After LIFTOFF compilation finishes, engine starts background threads to generate optimized code for the module

QUICK START + OPTIMIZED PERFORMANCE