Introduction to JavaScript platform

MATF, Beograd, 10-10-2019

AGENDA

01 JavaScript programming language

02 Usage of JavaScript

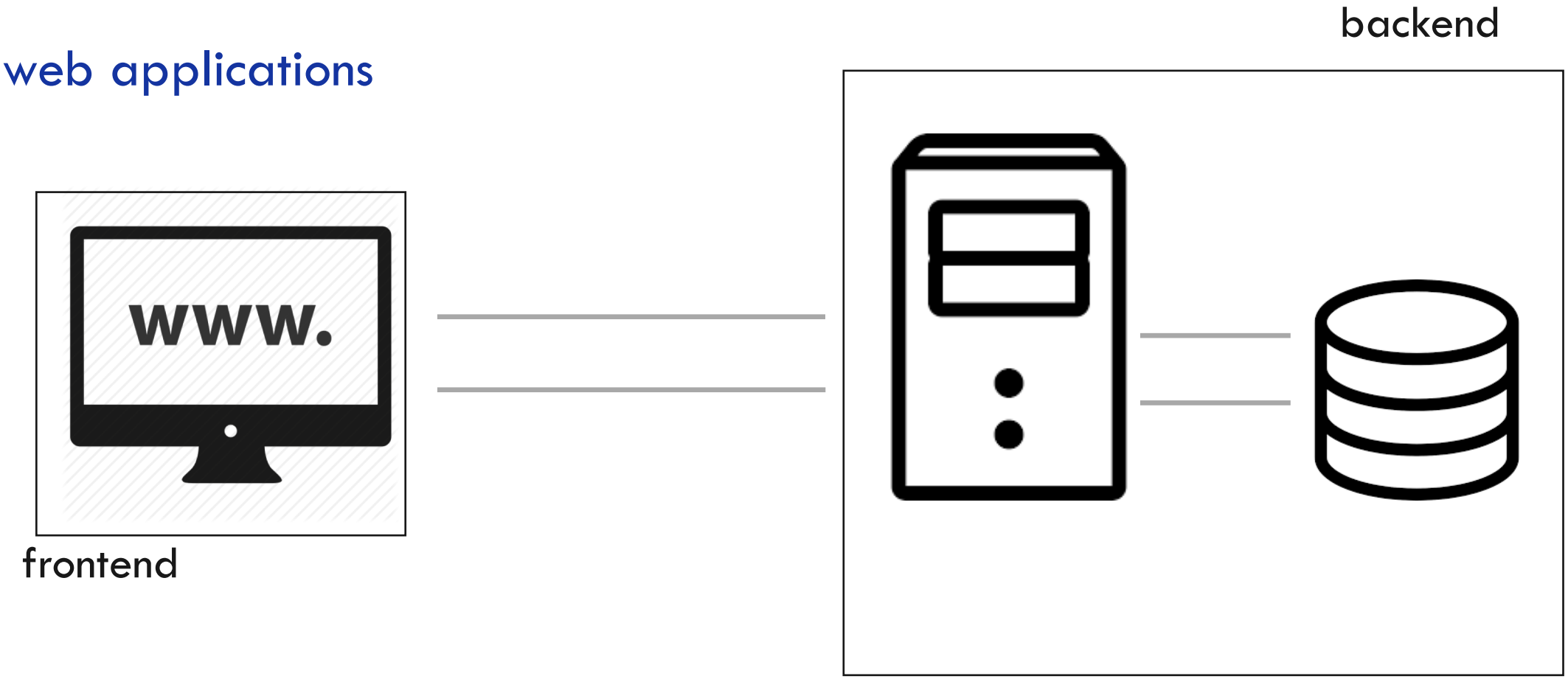
03 JavaScript runtime

JavaScript as programming language

- high level language
  - strong abstraction from the hardware
  - easy to understand, easy to debug
  - it requires compiler or interpreter
- scripting language
  - interpreted vs. compiled
  - needs run-time to be executed
- dynamically typed language
  - statically typed: variable type is known at compile time
  - dynamically typed: type is associate with run-time values
  - strong typing vs. weak typing
- single threaded
  - asynchronous behavior isn't part of the language

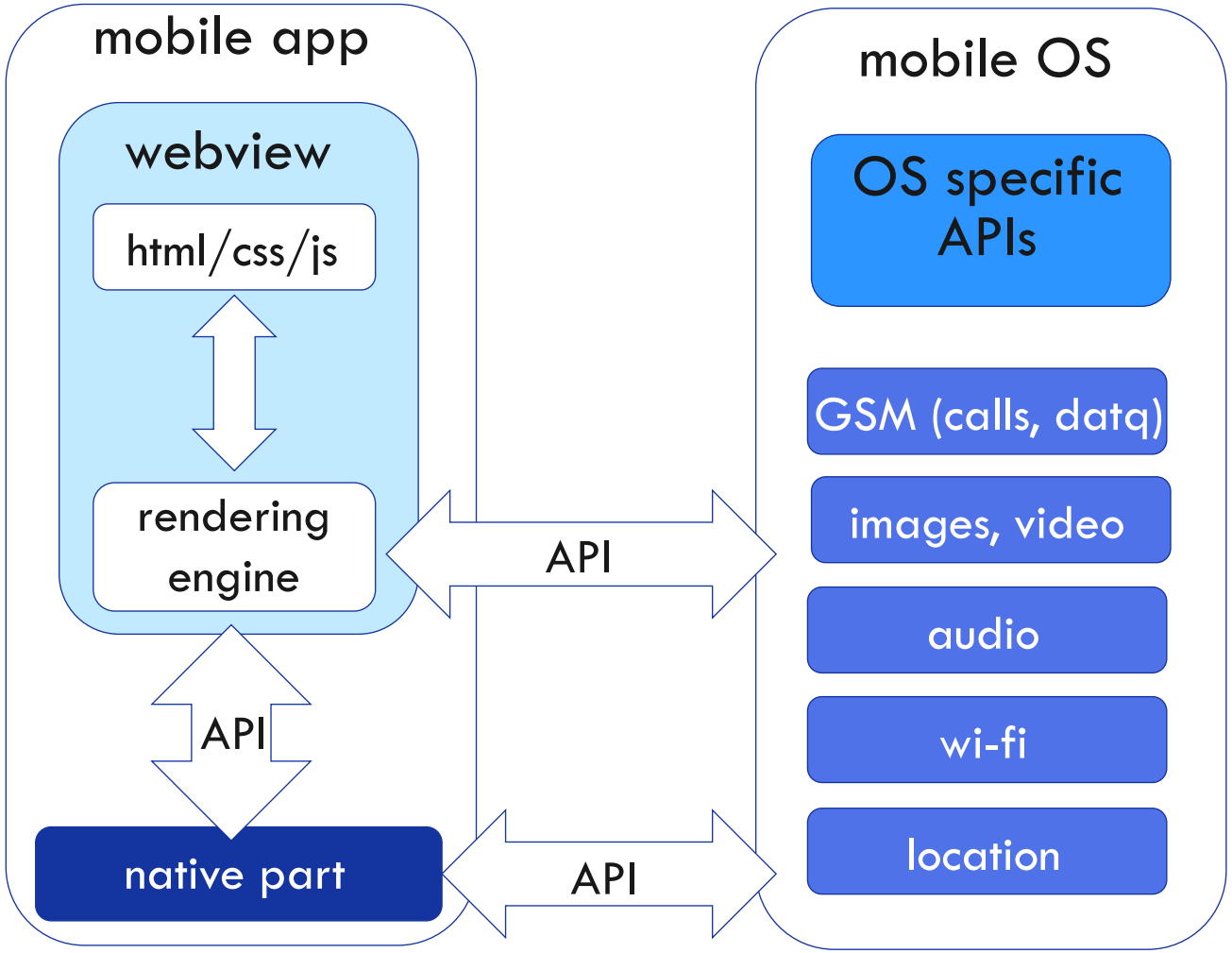
Usage of JavaScript

web applications



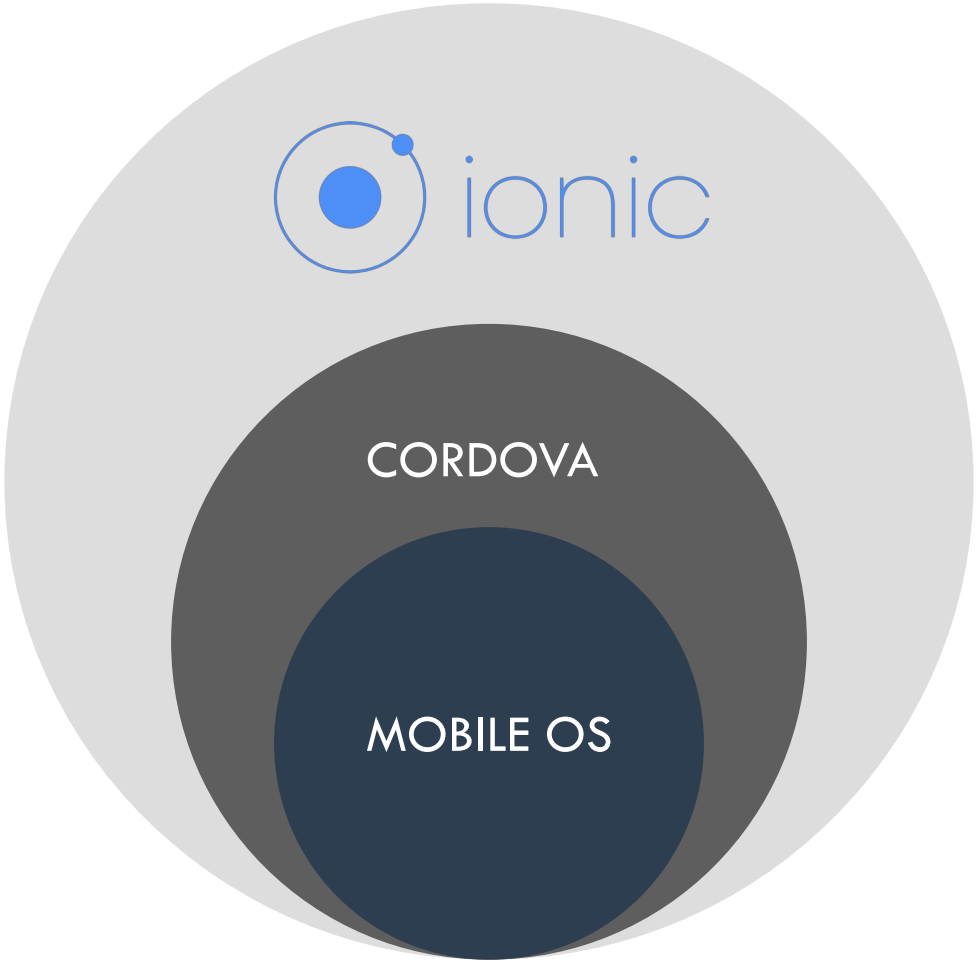
Usage of JavaScript

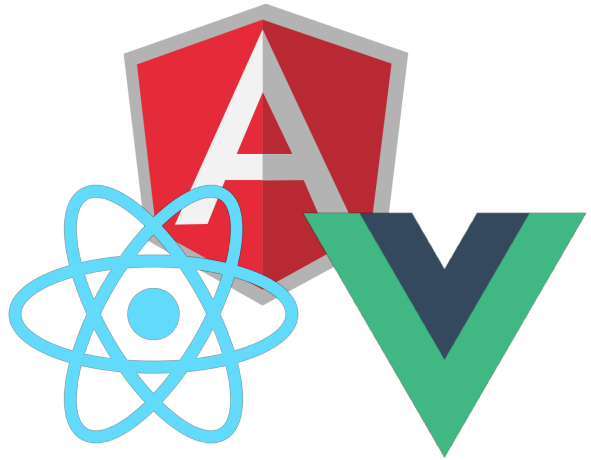
hybrid mobile applications



Usage of JavaScript

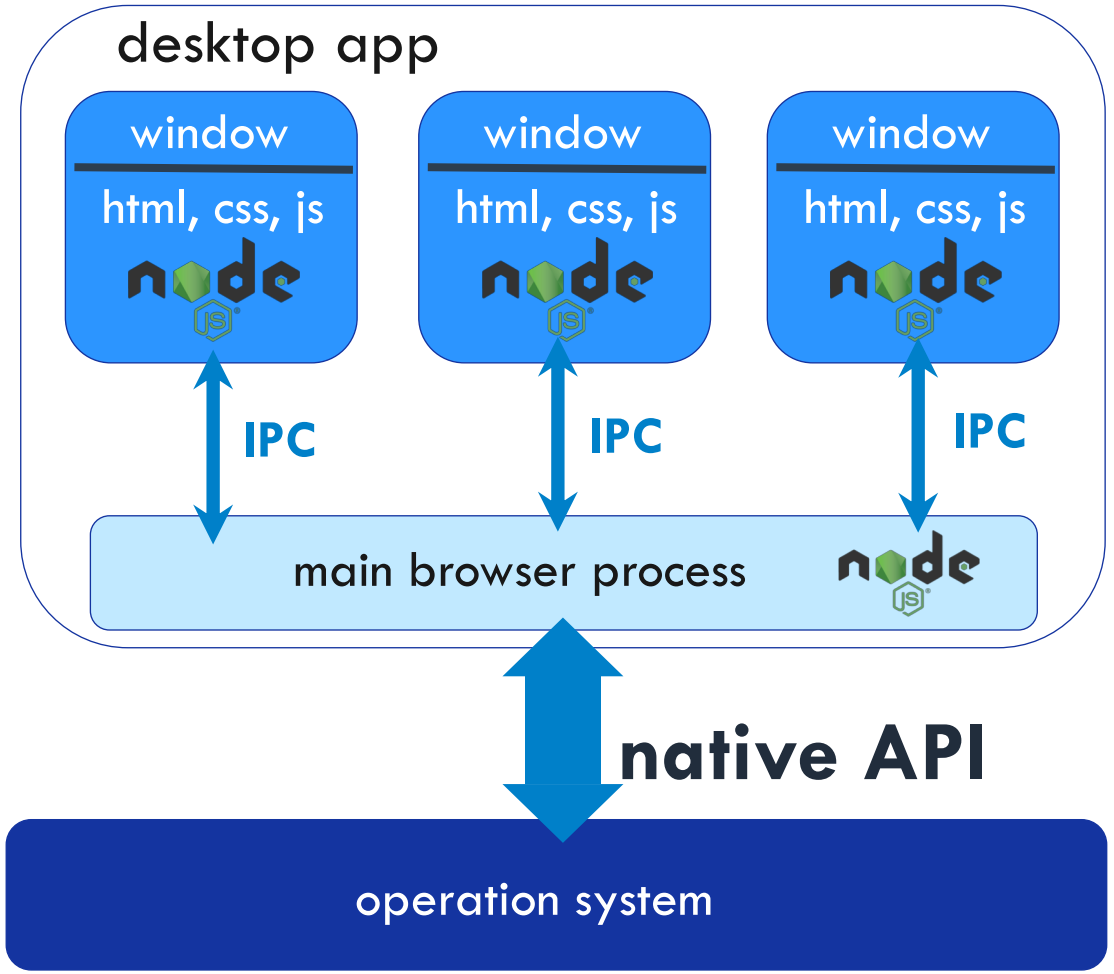
mobile applications





Usage of JavaScript

desktop applications



Usage of JavaScript

games

- WebGL & canvas
- input
- audio
- physics, sprite, animations
- mobile & desktop

Usage of JavaScript

others

- Virtual reality applications -> React VR
- Augmented reality applications -> Argon.JS
- Online communication applications (peer-to-peer)
- Flying drone
- …

JavaScript runtime

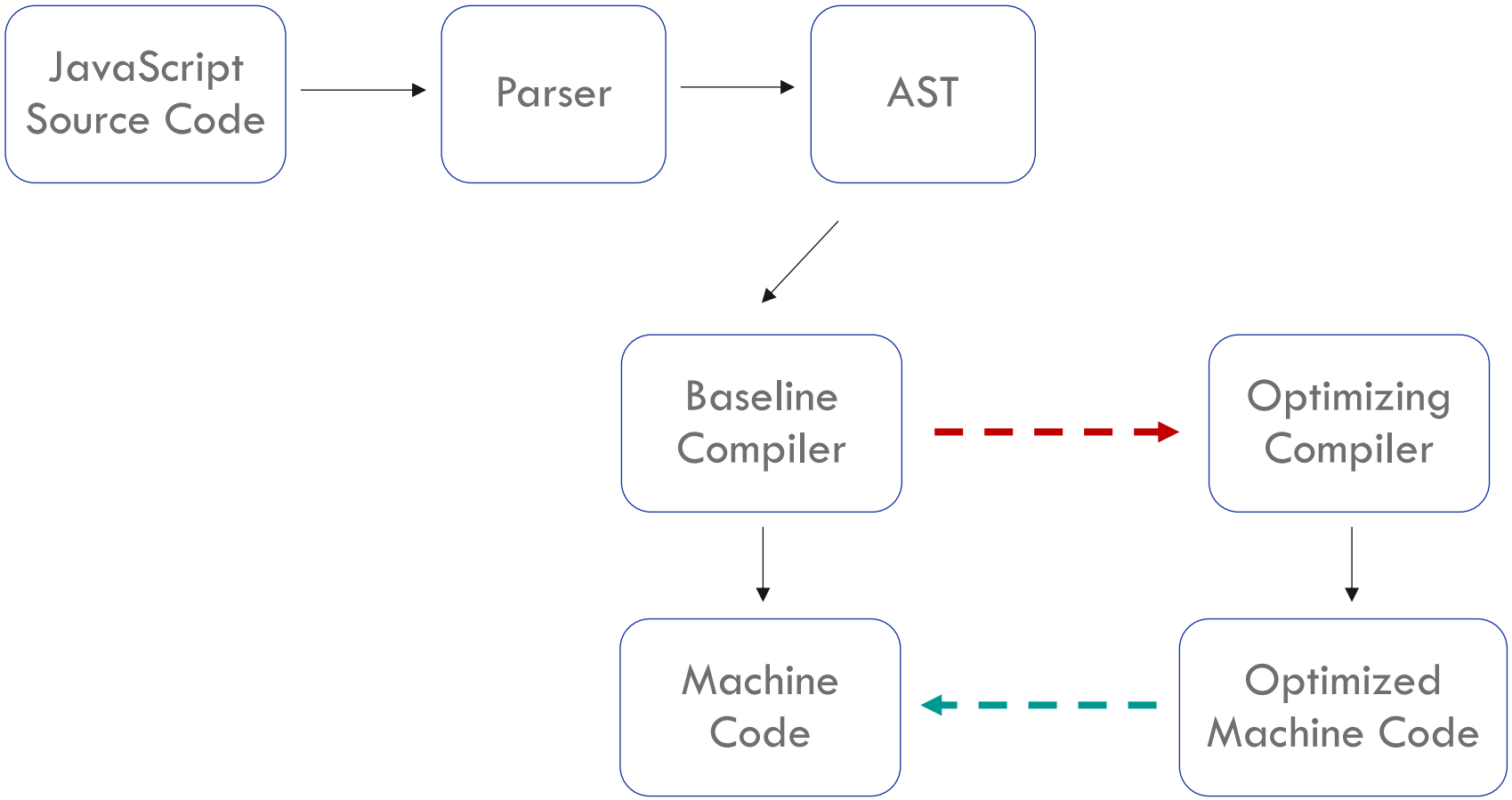
runtime != engine

- V8 – Google Chrome, Node.js
- SpiderMonkey – Mozilla Firefox
- Nitro (JavaScriptCore) - Safari
- Chakra – Microsoft edge / iexplorer

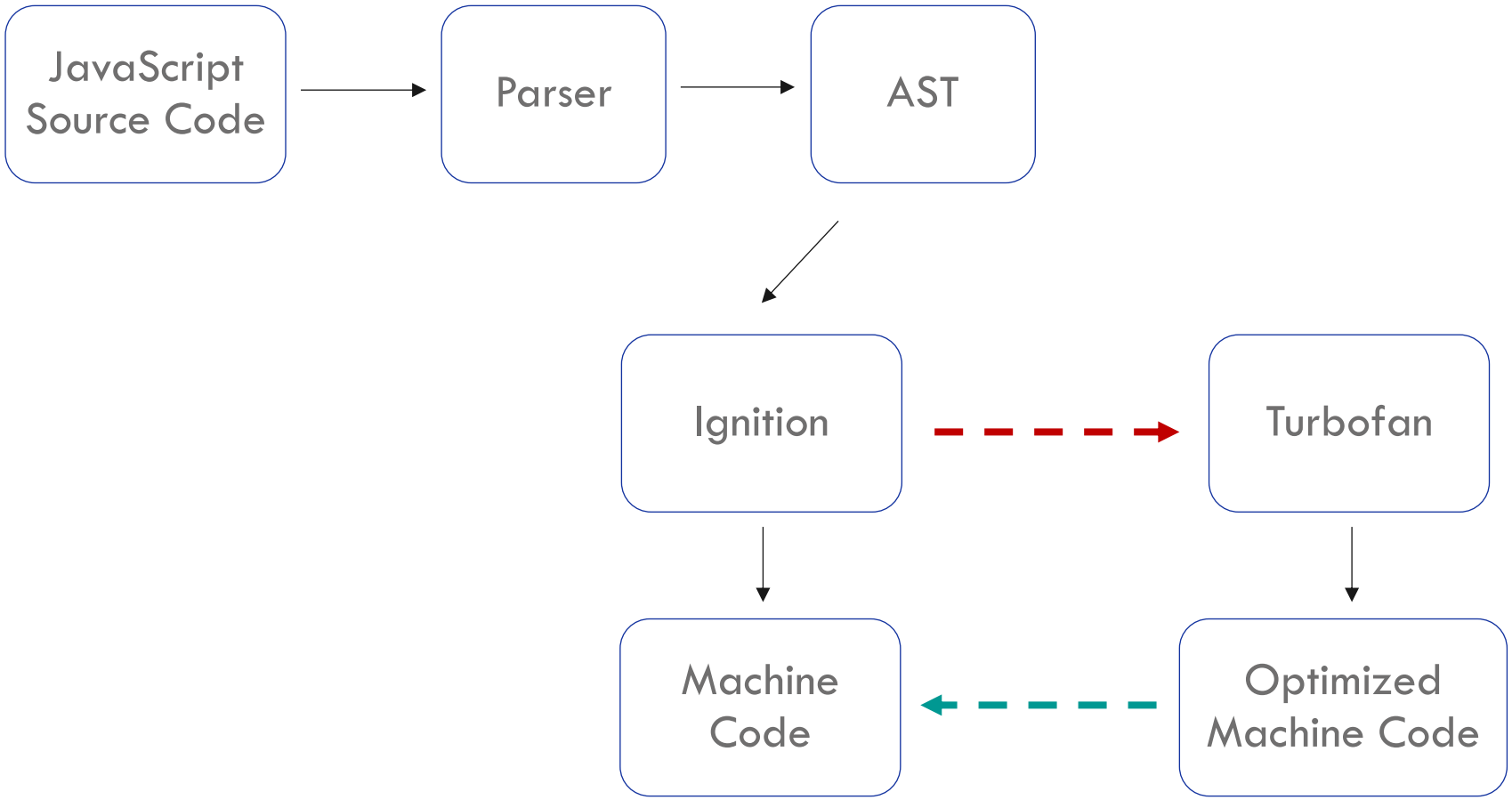
JavaScript V8 engine

- compile and execute JavaScript code
- executing functions in same order (using call stack)
- memory management, object allocation (heap)
- garbage collection

JavaScript V8 engine



JavaScript V8 engine



QUESTIONS ?

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