YES JAVASCRIPT IS FASTER THAN JAVA*!

* WHEN YOU USE GRAALVM

Paulo Lopes - @pml0pes

I'M A … DEVELOPER!

- Polyglot
- Game
- Open Source

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- Polyglot Java (since 1.1.4)
- Game
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- RedHat Principal Software Engineer

JAVASCRIPT

JAVASCRIPT

PROPERTIES

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PROPERTIES

Infinity

JAVASCRIPT

PROPERTIES

Infinity NaN

JAVASCRIPT

PROPERTIES

Infinity NaN undefined

JAVASCRIPT

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FUNCTIONS

JAVASCRIPT

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Object

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OBJECTS

Object Function

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OBJECTS

Object Function Boolean

JAVASCRIPT

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I KNOW JAVASCRIPT!

JAVASCRIPT (AND THE JVM)

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- (May 2009) Node.js is presented at JSConf
- (Mar 2013) Node.js 0.10.x release
- (Mar 2014) Nashorn is bundled with Java 8

WHY CARE ABOUT JAVASCRIPT?

- *Everyone* knows the language

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- Productive write, (debug), run!

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WHY CARE ABOUT JAVASCRIPT?

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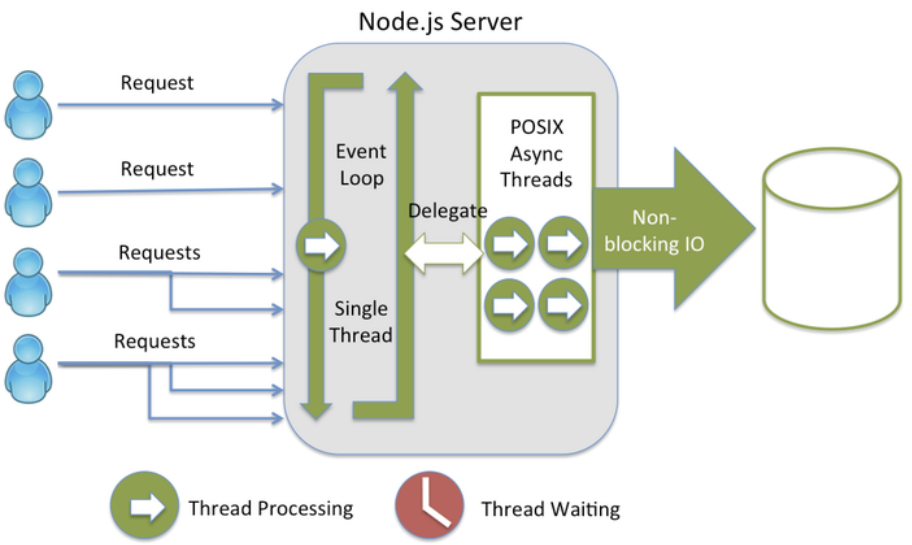
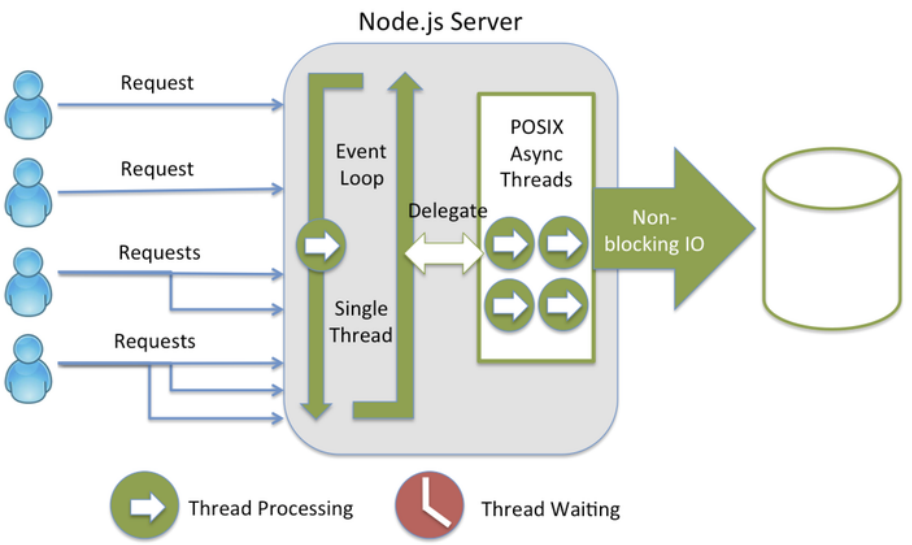
- Productive write, (debug), run!
- Millions of libraries on NPM Yes I know leftpad!
- Fullstack

NODEJS IS FAST!



https://strongloop.com/strongblog/node-js-is-faster-than-java/

NODEJS IS FAST! (NOT REALLY!)



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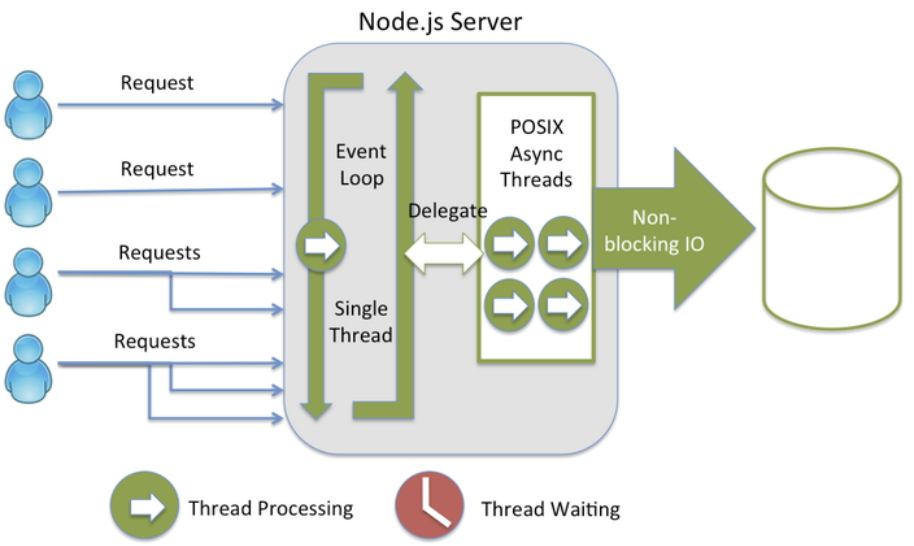

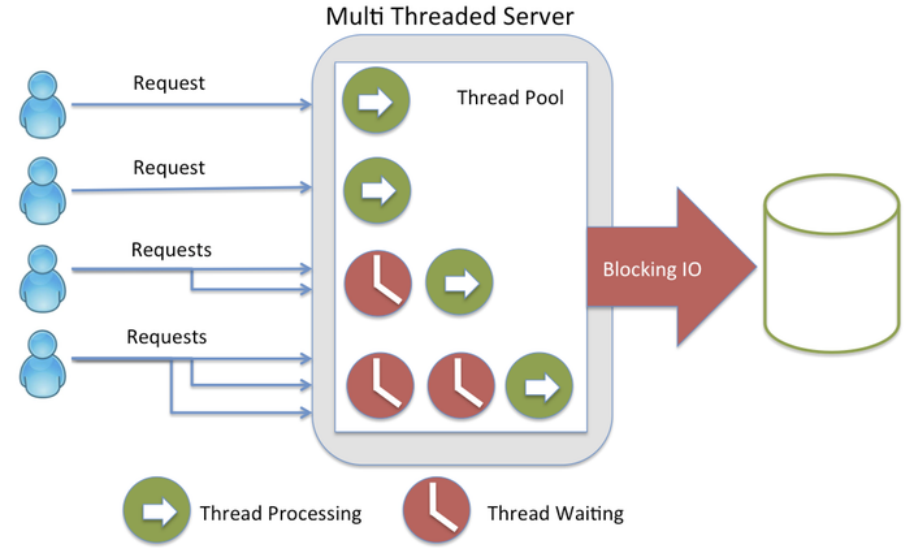

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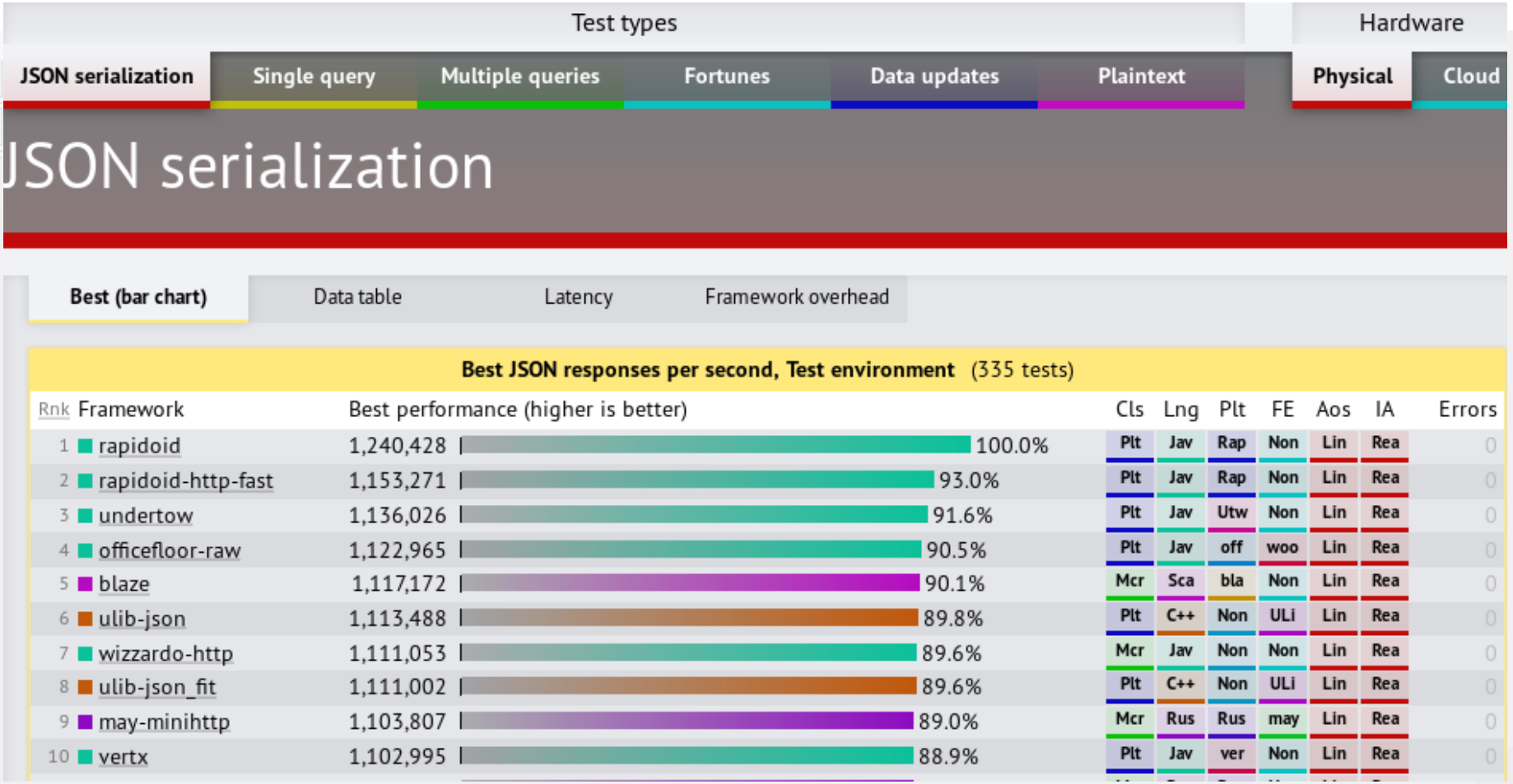
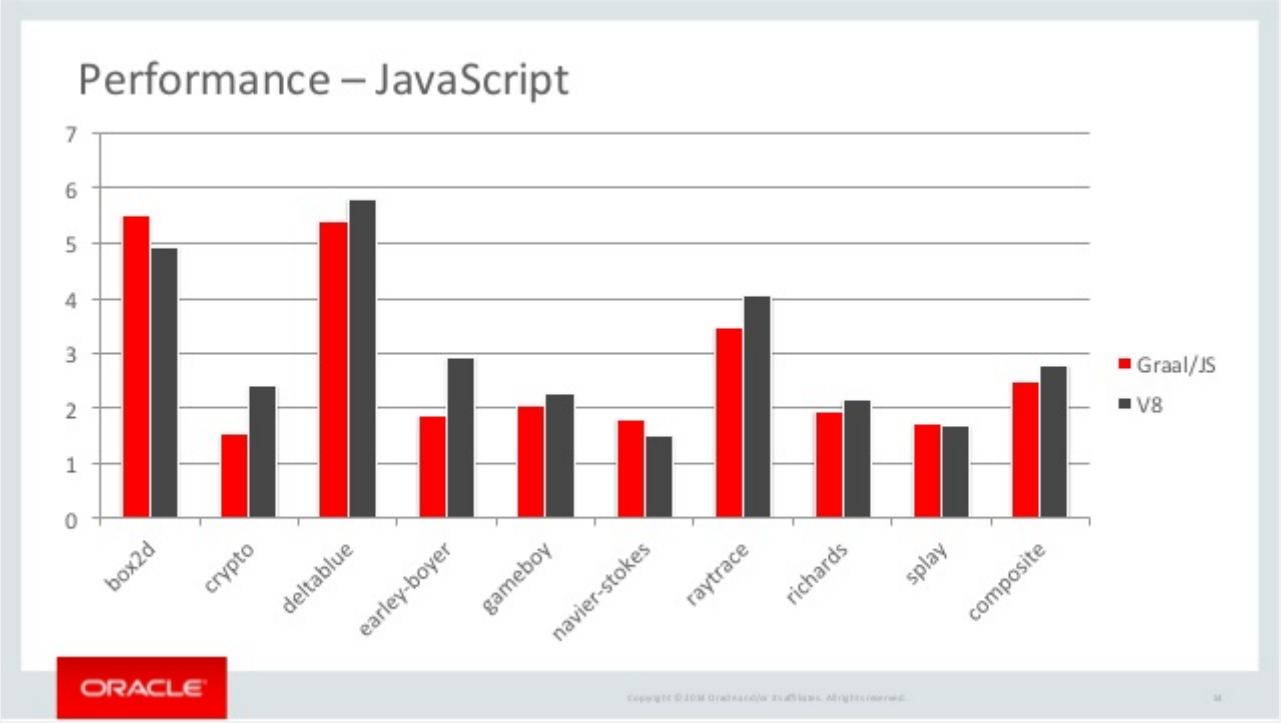


https://www.techempower.com/benchmarks/

GRAALJS



https://www.slideshare.net/ThomasWuerthinger/2015-cgo-graal

THE NEED FOR SPEED

- Slow [rhino]
- Fast
- Faster
- Fastest

THE NEED FOR SPEED

- Slow rhino
- Fast nashorn
- Faster
- Fastest

THE NEED FOR SPEED

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THE NEED FOR SPEED

- Slow rhino
- Fast nashorn
- Faster nodejs
- Fastest graaljs

PERFORMANCE

- Get closer to the Hardware
- Go Hybrid

CLOSE TO THE HARDWARE

```
.text
  .global _start
_start:
  movl    $len,%edx
  movl    $msg,%ecx
  movl    $1,%ebx
  movl    $4,%eax
  int     $0x80
  movl    $0,%ebx
  movl    $1,%eax
  int     $0x80
...
```

HYBRID MODEL

- pick a good jvm framework
- make it polyglot
- profit

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HYBRID MODEL

- pick a good jvm framework Vert.x
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HYBRID MODEL

- pick a good jvm framework Vert.x
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ES4X

- latest JavaScript support *With GraalVM*
- `package.json` / "NPM" development style
- great tooling IntelliSense, Debugging
  With TypeScript
- insane performance!

WHY VERT.X?

- Toolkit

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- Unopiniated

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- Polyglot

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WHY VERT.X?

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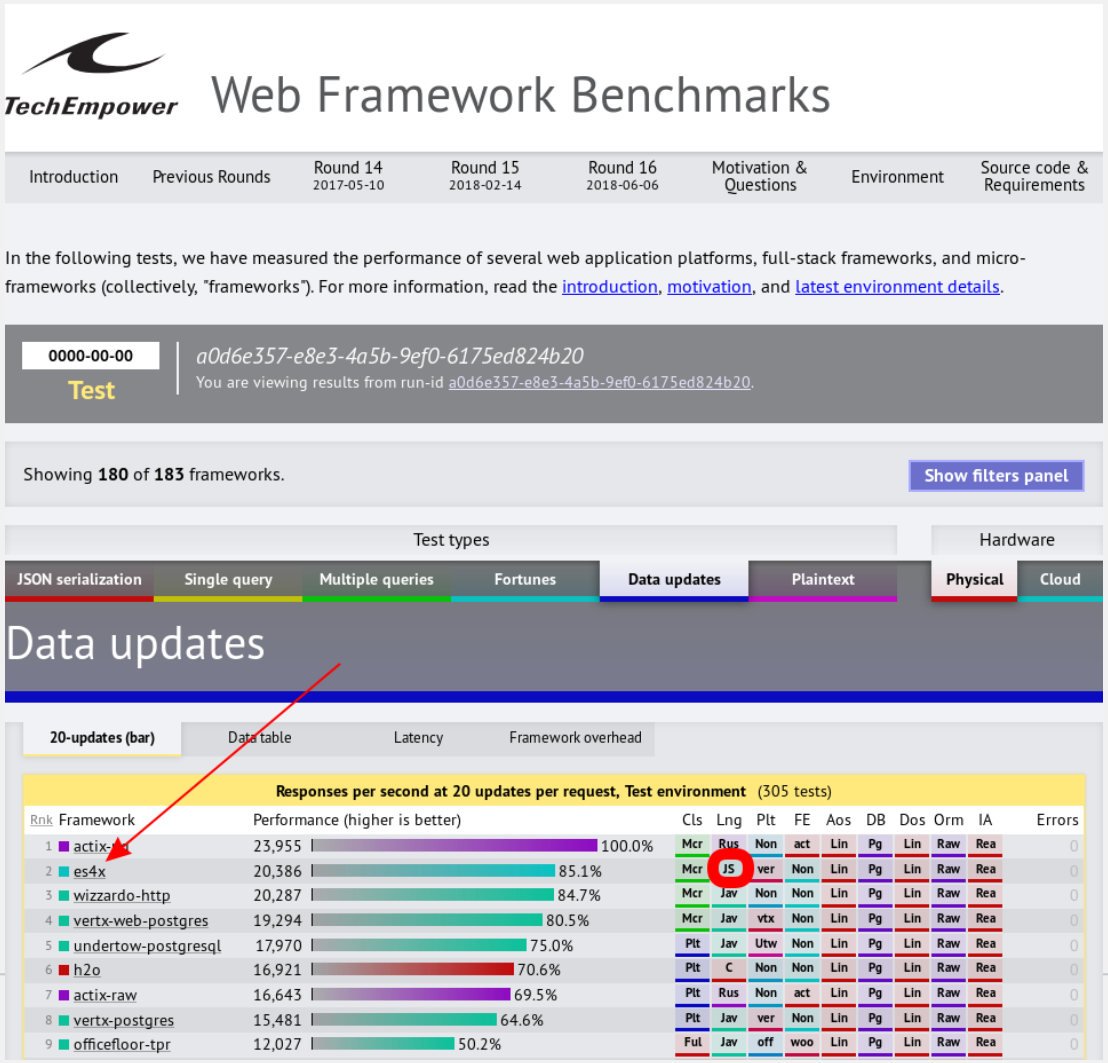
- Reactive
- Distributed

DEMO 0

https://github.com/pmlopes/presentations/tree/codeone/demo-0

HOW FAST?



TechEmpower Web Framework Benchmarks

Introduction | Previous Rounds | Round 14 2017-05-10 | Round 15 2018-02-14 | Round 16 2018-06-06 | Motivation & Questions | Environment | Source code & Requirements

In the following tests, we have measured the performance of several web application platforms, full-stack frameworks, and micro-frameworks (collectively, "frameworks"). For more information, read the introduction, motivation, and latest environment details.

0000-00-00 Test

a0d6e357-e8e3-4a5b-9ef0-6175ed824b20

You are viewing results from run-id a0d6e357-e8e3-4a5b-9ef0-6175ed824b20.

Showing **180** of **183** frameworks. Show filters panel

Test types: JSON serialization | Single query | Multiple queries | Fortunes | Data updates | Plaintext

Hardware: Physical | Cloud

Data updates

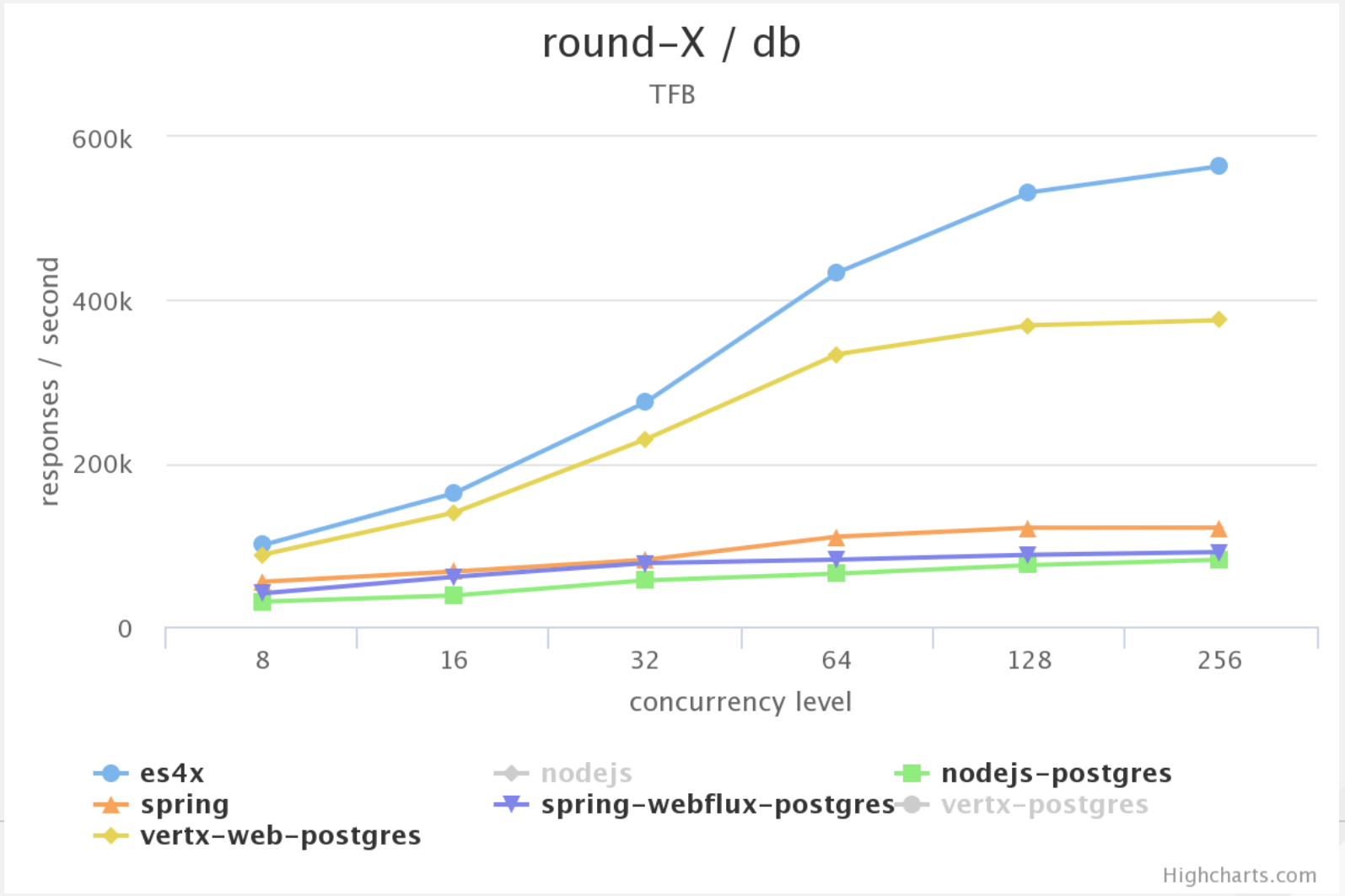
20-updates (bar) | Data table | Latency | Framework overhead

Responses per second at 20 updates per request, Test environment (305 tests)

Rnk	Framework	Performance (higher is better)	Cls	Lng	Plt	FE	Aos	DB	Dos	Orm	IA	Errors
1	actix-[illegible]	23,955 100.0%	Mcr	Rus	Non	act	Lin	Pg	Lin	Raw	Rea	0
2	es4x	20,386 85.1%	Mcr	JS	ver	Non	Lin	Pg	Lin	Raw	Rea	0
3	wizzardo-http	20,287 84.7%	Mcr	Jav	Non	Non	Lin	Pg	Lin	Raw	Rea	0
4	vertx-web-postgres	19,294 80.5%	Mcr	Jav	vtx	Non	Lin	Pg	Lin	Raw	Rea	0
5	undertow-postgresql	17,970 75.0%	Plt	Jav	Utw	Non	Lin	Pg	Lin	Raw	Rea	0
6	h2o	16,921 70.6%	Plt	C	Non	Non	Lin	Pg	Lin	Raw	Rea	0
7	actix-raw	16,643 69.5%	Plt	Rus	Non	act	Lin	Pg	Lin	Raw	Rea	0
8	vertx-postgres	15,481 64.6%	Plt	Jav	ver	Non	Lin	Pg	Lin	Raw	Rea	0
9	officefloor-tpr	12,027 50.2%	Ful	Jav	off	woo	Lin	Pg	Lin	Raw	Rea	0

redhat.

FASTER THAN JAVA



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WHY TYPESCRIPT?

- helps with intellisense
- allows you to verify your code at development time
- no performance impact at runtime

THE BASICS

- bootstrap project
- create simple app the code from the benchmark
  - code completion
  - debugging
- (bonus) async await

DEMO 1

https://github.com/pmlopes/presentations/tree/codeone/demo-1

LETS INTEGRATE!

- server side rendering with `reactjs`
- integrate with drools `¯\_(ツ)_/¯`

DEMO II

https://github.com/pmlopes/presentations/tree/codeone/demo-2

redhat.

VERT.X

VERT.X

+

VERT.X

+

GRAALVM

VERT.X

+

GRAALVM

= ❤

THANK YOU!

- https://reactiverse.io/es4x
- https://www.graalvm.org
- https://vertx.io
- https://www.jetdrone.xyz
- https://twitter.com/pml0pes