JS Performances VS Common Good Practices

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(aka @WebReflection)

Who am

- WebReflection (http://webreflection.blogspot.com)
- Ajaxian (http://ajaxian.com)
- TE: JavaScript Patterns

 (@stoyanstefanov http://amazon.com Bestseller)
- TE:Test-Driven JavaScript Development (@cjno http://amazon.com Bestseller)
- Mobile Platform R&D SW Developer (NOKIA)

Moore's law

- The number of transistors that can be placed inexpensively on an integrated circuit has doubled approximately every two years
- Exponential processor transistor growth does not mean exponential performances

computing to go

THE MOBILE ERA

Scripting

- beautiful
- who cares about performances
- micro optimizations suck
- if it leaks it's a GC fault
- the "compiler" optimizes for me

Programming

- beautiful
- best algorithms means best performances
- hacks may be good to reach a goal
- performances practices do matter
- too much "magic" never happens here

JavaScript

- "the good looking girl that comes at the party with an ugly boyfriend called DOM"
- the most misunderstood language (Mr D)
- the less studied language on academic level
- the "don't need to learn it since I know Java, Ruby, C#, PHP, Whatever++"
- ... aka "if JSLint says I am wrong, I must be!"

Still the most (ab)used programming language in the world!

JS "Good Practices"

- simulate classic Object Oriented Programming style
- being religious about whatever Lint SW
- "classic OOP style or readability" matters
- if it's difficult to read, it's not me being noob it's obviously the code written badly ...
- JavaDoc Style comments ... Oh Yeah!

Performances

- WEB related, bottlenecks are *everywhere*
- hard to achieve cross platform speaking, engines are too often *that* different!
- abstraction *costs*

... rewind ... PERFORMANCES!

- define your target browser/engine (lazily or separating specific files loading only what you need *when* you need)
- avoid "exponential scaling" architecture (KISS/YAGNI Approach VS Over Engineering)
- improve your language knowledge

which meansand just fews ...

- ignore Lint warnings or "errors" if meant
- avoid Classic OOP emulation
 (prototypal inheritance could be much better!)
- avoid repeated property access
- avoid closures when possible
- understand what's going on!
 (jQuery, frameworks folks, newcomers, please improve!)

"Take Care Of" List

- download size matters
- roundtrip matters
- responsiveness matters
- dynamic data and scaling matters
- JS engine matters

A Worthy Compromise

- more performances oriented practices
- more "compilers" help, when possible
- define best "ad hoc" practice, don't trap yourself behind some "silly convention"
- "think deflate/gzip" if you can!

TESTS!

- 1000X up to 10000X+ performances boost!
- slower is the device, more "real cases" gap we gain!
- http://3site.eu/ft
- ... please don't freak out, I gonna explain those results ...

How Browsers Help

- (V8, SquirrelFish+Extreme, Carakan, Tamarin)
- Typed Arrays (https://cvs.khronos.org/svn/repos/registry/trunk/public/webgl/doc/spec/TypedArray-spec.html)
- 2D HW Acceleration (canvas, CSS3, FF4 http://weblogs.mozillazine.org/roc/archives/2010/09/full_hardware_a.html, IE9)
- 3D HW Acceleration (CSS3, WebGL)

HW Acceleration IS NOT ENOUGH!

- Get a Netbook, possibly with a GPU
- Wow, Look at those fishes in IE9! (http://ie.microsoft.com/testdrive/Performance/FishlE%20tank/Default.html)
- Now ... Look at that Zooming in IE9! (http://ie.microsoft.com/testdrive/Performance/10MapZooming/Default.html)
- Now, after zooming, simply PAN THE MAP!
- ... and now let's see if we can go faster or slower ... then I'll answer your questions :-)