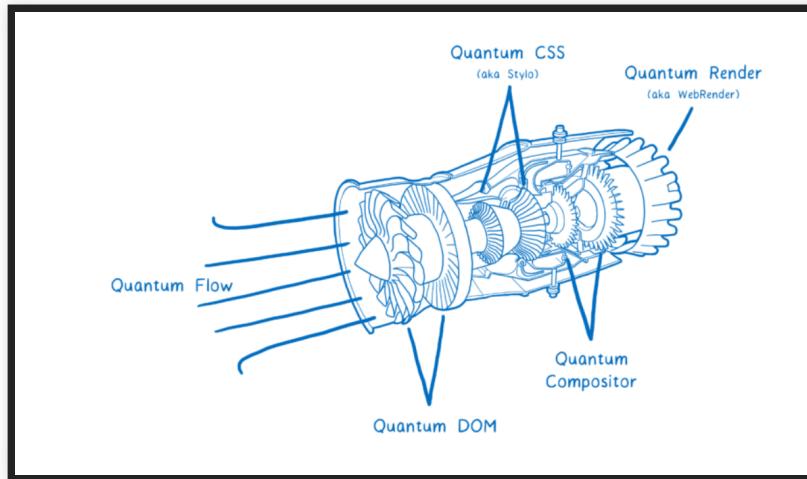


# RUST, SERVO AND FIREFOX QUANTUM

The history through a personal tale



**I'M STEFANIA DELPRETE**

astrastefania on LinkedIn, Twitter, GitHub...

**ONCE UPON A TIME...**

# JULY 2010

Rust, a personal project by Graydon Hoare, became officially sponsored by Mozilla Research and launched at the Mozilla Summit 2010.

**FAST FORWARD, FEW  
YEARS LATER...**

# MAY 2015

Rust programming language reached its 1.0 stability milestone!

# WHY?

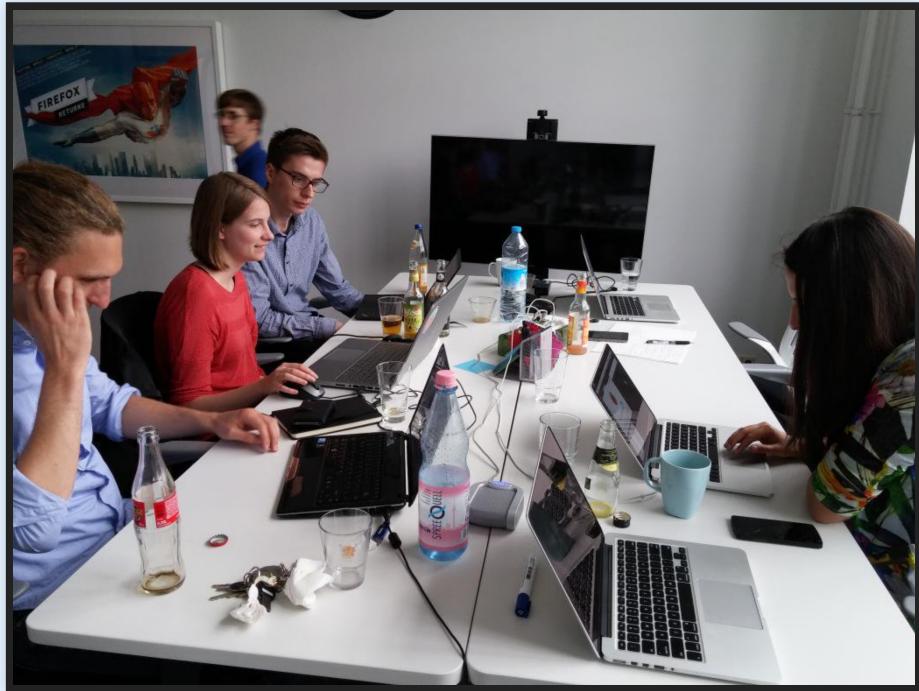
safety

speed

concurrency

# JULY 2015

In the meantime I landed in Berlin where I attended my first Mozilla event and ended up working on a bug with David Bryant.



# **SEPTEMBER 2015**

Three friends in a pub ready to change the world...

# NOVEMBER 2015

First Mozilla Berlin Tech Weekend where I really discover Servo, and Rust, with Till Schneidereit talk

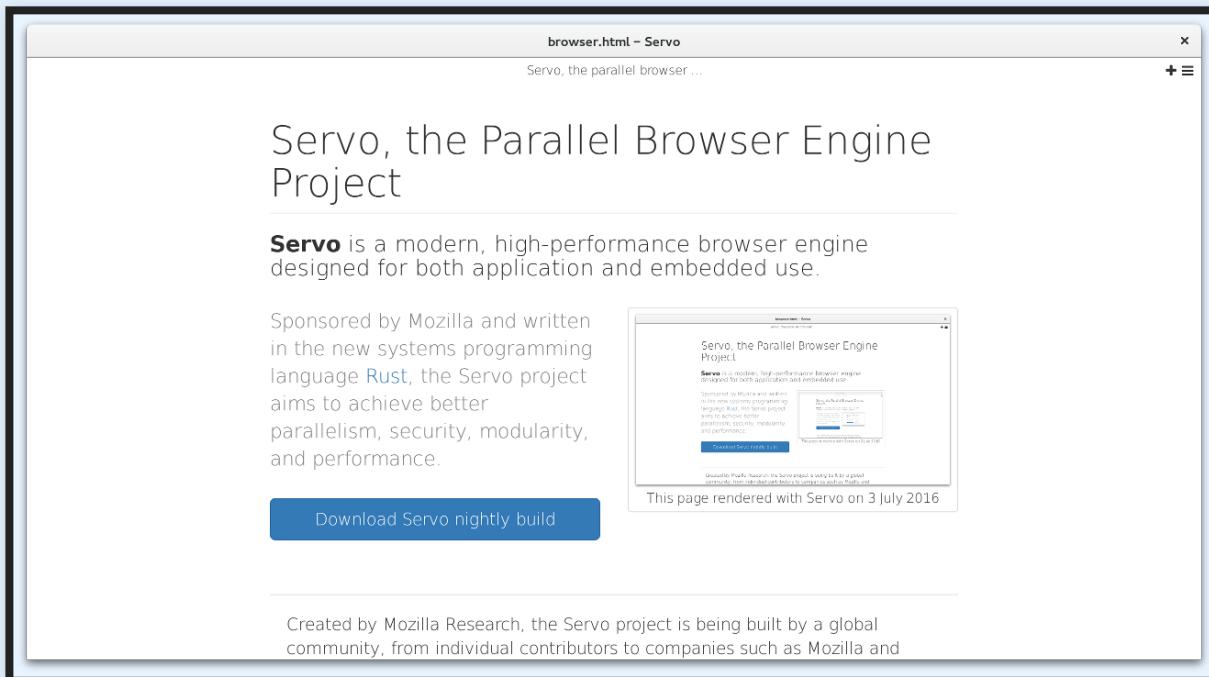
[\*\*"Mozilla's Parallel and Safe Next-Generation  
Browser Engine".\*\*](#)

# "Rust makes parallelization feasible"



# FEBRUARY 2016

And than it was time to play with Rust and Servo!



# MAY 2016

Servo and Rust communities kept expanding, there were projects to test [Servo in HTML](#) and frequent Rust MeetUp events and study groups

# AUGUST 2016

Rust is used for the first time in Firefox 48 to fix an MP4 metadata parser.

The [Oxidation Project](#), integrating Rust code in and around Firefox, became real!

# SEPTEMBER 2016

After the View Source I went back in Italy and started exploring the local open source scene.

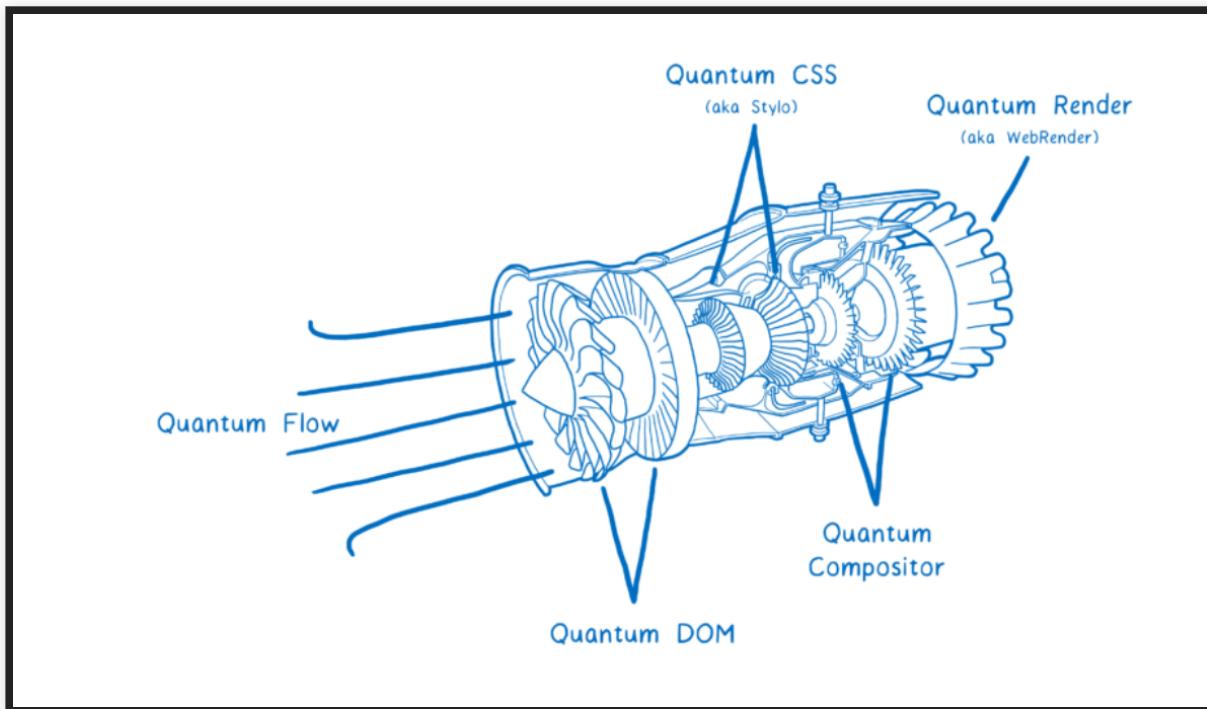


# OCTOBER 2016

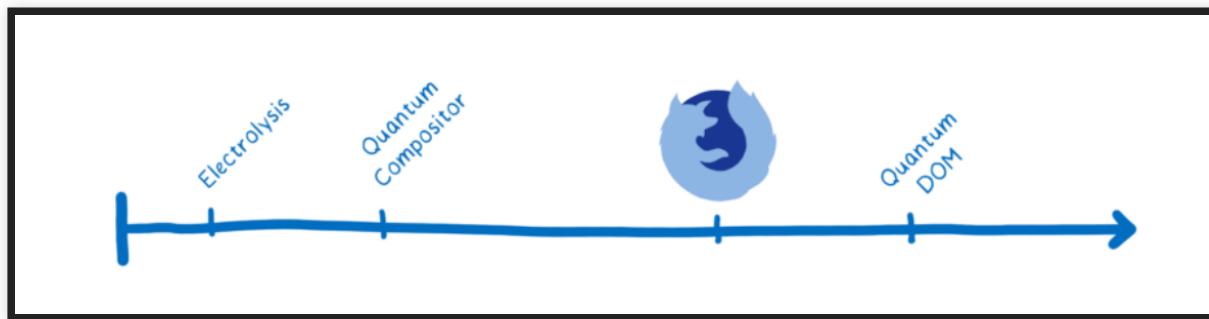
David Bryant [announced the Quantum Project](#):

"Quantum is our effort to develop Mozilla's next-generation web engine and start delivering major improvements to users by the end of 2017. [...] Quantum has a number of components, including several adopted from the Servo project."

# THE QUANTUM PROJECT...



# ... AND ITS TIMELINE



# JANUARY 2017

I'm back in Berlin for ten intense days, talking about Quantum, data science and [comparing browser page load time](#).

# APRIL 2017

First part of the Quantum Project in [Firefox 53](#): the  
Quantum Compositor!

# QUANTUM COMPOSITOR

"Compositors are responsible for flattening all of the various elements on a webpage into a single image to be drawn on the screen."

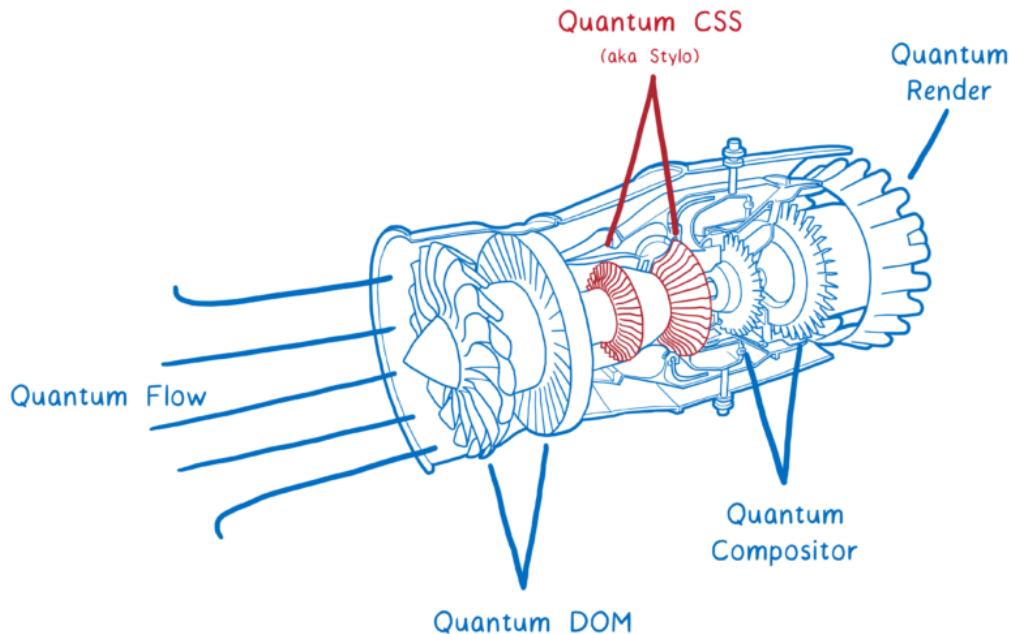
" Quantum Compositor moved the compositor to its own process. The biggest win here was that it made Firefox more stable. Having a separate process means that if the graphics driver crashes, it [won't crash all of Firefox.](#)"

# QUANTUM DOM

"The goal of the [Quantum DOM](#) project is to eliminate jank caused by background tabs. One of the main ways we intend to do this is to run each tab in its own cooperatively scheduled thread."

# NOVEMBER 2017

The CSS engine [Quantum CSS](#) (known as Stylo),  
first major component from Servo, landed on  
Firefox 57!



# QUANTUM CSS

"With Stylo, the work of CSS style computation is fully parallelized across all of the CPU cores. Stylo uses a technique called work stealing to efficiently split up the work between the cores so that they all stay busy."

# DECEMBER 2017

Oxidation Meeting in Austin

Compile speed and memory usage

Cross-language inlining

# FEBRUARY 2018

Rust 1.24.0

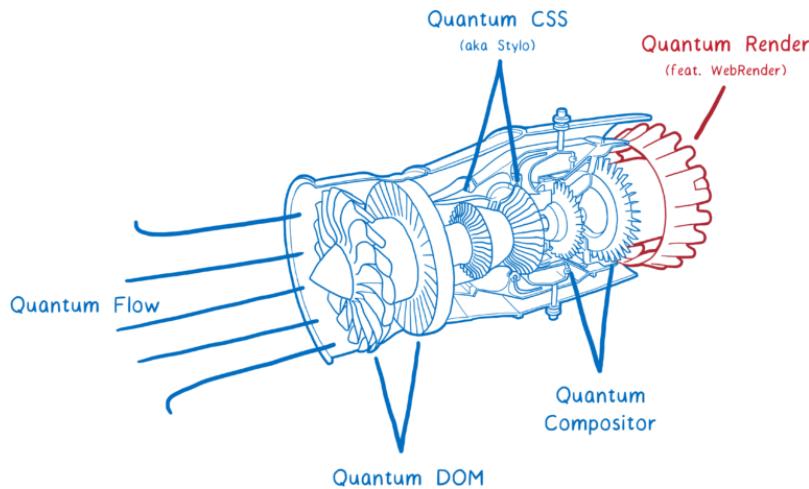
Firefox 58

Firefox 60 (Nightly)



# QUANTUM RENDER

"The WebRender is Servo's next-generation render optimized for GPU rendering". It expected to land in late spring, it can now be enabled in the Firefox Nightly!



Check out the latest [WebRender newsletters](#)

# CREDITS AND ARTICLES

Drawings by [Lin Clark](#)

[Why Rust is the Most Loved Language by Developers](#)

Curiosities through 5-year old tickets: Rust in [Gecko](#) and in [Tor](#)?

And now will [Tor be written in Rust?](#)

[Designing for performance: A data-informed approach for Quantum development](#)

[Entering the Quantum Era—How Firefox got fast again and where it's going to get faster](#)

# RESOURCES

[Rust and Servo](#)

The [Quantum Project](#) and how to get involved

[Quantum Up Close: What is a browser engine?](#)

[Quantum Render and WebRender in Servo](#)

[Firefox releases](#)

# MERGE-IT

Mozilla Italia track including Rust activities

Turin, 24 March 2018

[merge-it.net](http://merge-it.net)

**"E QUESTO È QUANTUM!" ;)**

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or [astrastefania](#) on

