

Three ways to improve cat videos with the open web

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August 19, 2017

AN x64 PROCESSOR IS SCREAMING ALONG AT BILLIONS OF CYCLES PER SECOND TO RUN THE XNU KERNEL, WHICH IS FRANTICALLY WORKING THROUGH ALL THE POSIX-SPECIFIED ABSTRACTION TO CREATE THE DARWIN SYSTEM UNDERLYING OS X, WHICH IN TURN IS STRAINING ITSELF TO RUN FIREFOX AND ITS GECKO RENDERER, WHICH CREATES A FLASH OBJECT WHICH RENDERS DOZENS OF VIDEO FRAMES EVERY SECOND

BECAUSE I WANTED TO SEE A CAT JUMP INTO A BOX AND FALL OVER.



I AM A GOD.

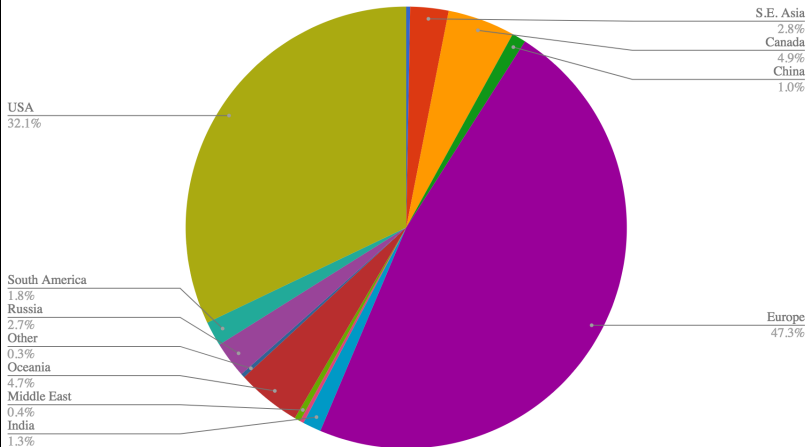
Figure 1: <https://xkcd.com/676/>

- Systems programming language
- No segfaults!
- No use-after-free bugs!
- Relatively painless concurrency

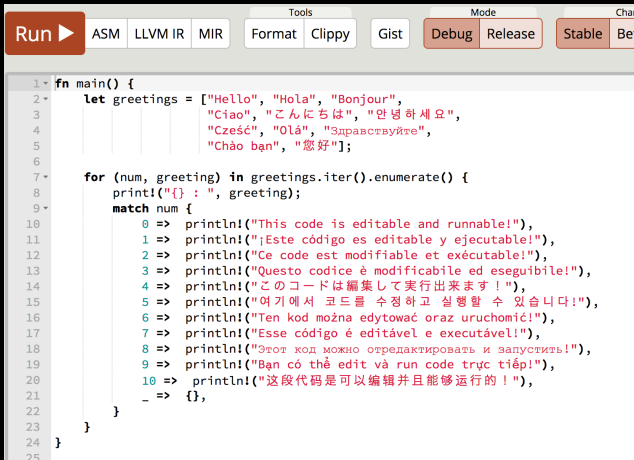
Cargo Rust's package manager aka MAGIC

Rust community

Rust users by region



88+ companies



The screenshot shows the Rust Playground interface. At the top, there are tabs for 'Tools' (ASM, LLVM IR, MIR, Format, Clippy) and 'Mode' (Debug, Release, Stable, Beta). Below the tabs is a 'Run' button. The main area contains a Rust program that defines a list of greetings in various languages and iterates over them, printing each one along with a multilingual message about editing and running the code.

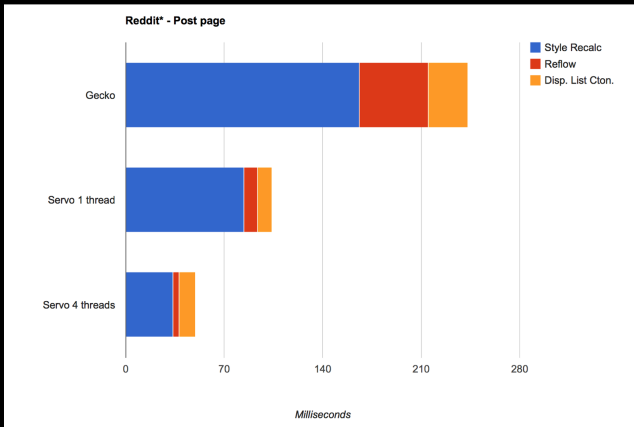
```
1 fn main() {  
2     let greetings = ["Hello", "Hola", "Bonjour",  
3                     "Ciao", "こんにちは", "안녕하세요",  
4                     "Cześć", "Olá", "Здравствуйте",  
5                     "Chào bạn", "您好"];  
6  
7     for (num, greeting) in greetings.iter().enumerate() {  
8         print!("{}", greeting);  
9         match num {  
10            0 => println!("This code is editable and runnable!"),  
11            1 => println!("Este código es editable y ejecutable!"),  
12            2 => println!("Ce code est modifiable et exécutable!"),  
13            3 => println!("Questo codice è modificabile ed eseguibile!"),  
14            4 => println!("このコードは編集して実行出来ます!"),  
15            5 => println!("여기에서 코드를 수정하고 실행할 수 있습니다!"),  
16            6 => println!("Ten kod można edytować oraz uruchomić!"),  
17            7 => println!("Esse código é editável e executável!"),  
18            8 => println!("Этот код можно отредактировать и запустить!"),  
19            9 => println!("Bạn có thể edit và run code trực tiếp!"),  
20            10 => println!("这段代码是可以编辑并且能够运行的!"),  
21            _ => {},  
22        }  
23    }  
24 }  
25
```

Learn more about Rust

- RustLang
- Rust Playground
- Docs
- Rust by example
- Rust book
- IRC #rust, #rust-beginners (mozilla), #rust (freenode)
- "How I convinced the world's largest package manager to switch to Rust" - @agdubs

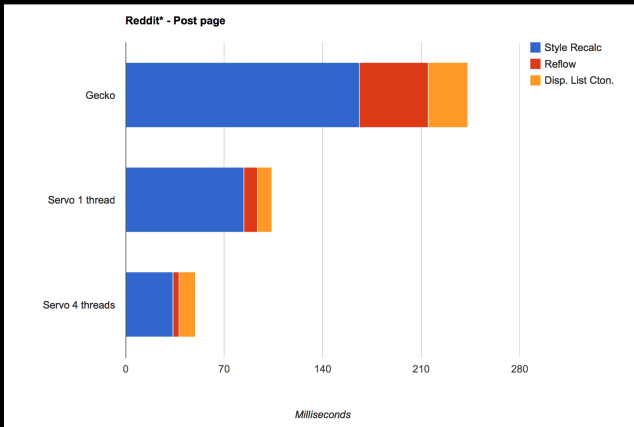


- Rendering engine written in rust
- Project Quantum
- WebVR





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Stylo Servo's parallel styling system...in Firefox

Pathfinder GPU vector graphics font rendering

WebRender GPU content renderer

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Learn more about Servo

- Docs
- Blog
- Nightly builds
- Github
- IRC #servo (mozilla)
- pcwalton on WebRender
- WebVR

A low-level assembly-like language...but for the browser!

- designed to integrate with JavaScript
- compact binaries, near-native performance
- C/C++/Rust compilation target

WebAssembly

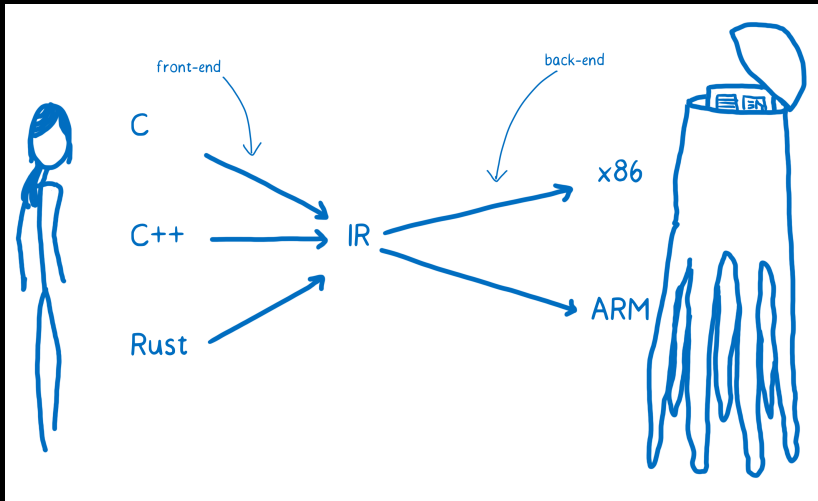
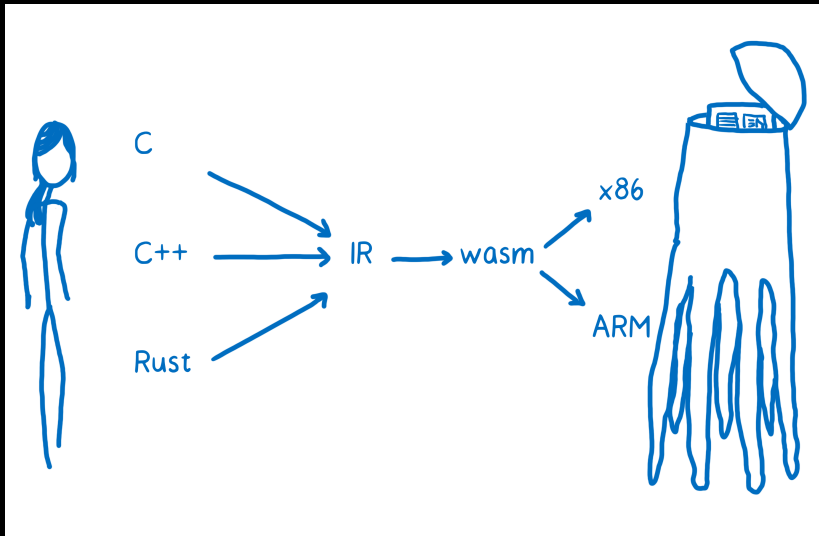
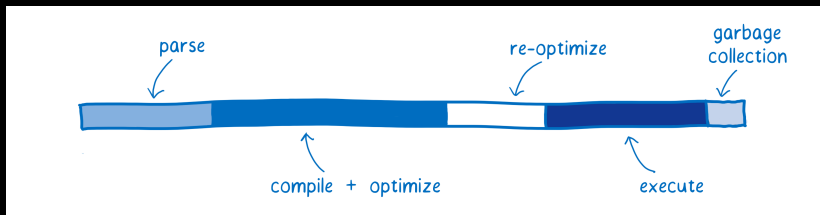


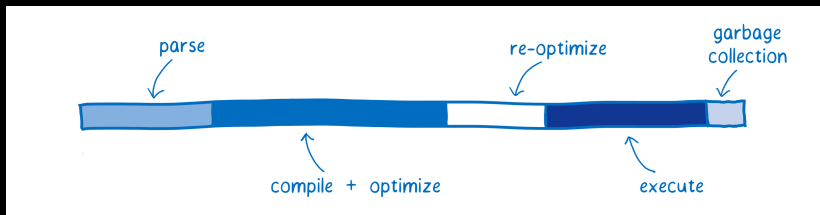
Figure 2: Lin Clark, A Cartoon Intro to WebAssembly



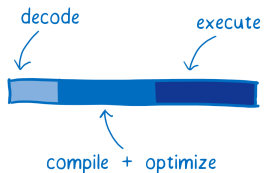
WebAssembly



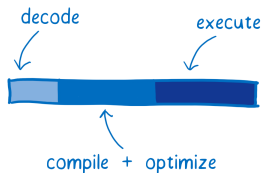
WebAssembly



WebAssembly



WebAssembly



Learn more about WebAssembly

- A cartoon intro to webassembly by lin clark
- Docs
- What is WebAssembly?
- Github
- Behind the scenes with WebAssembly

...still no cat videos



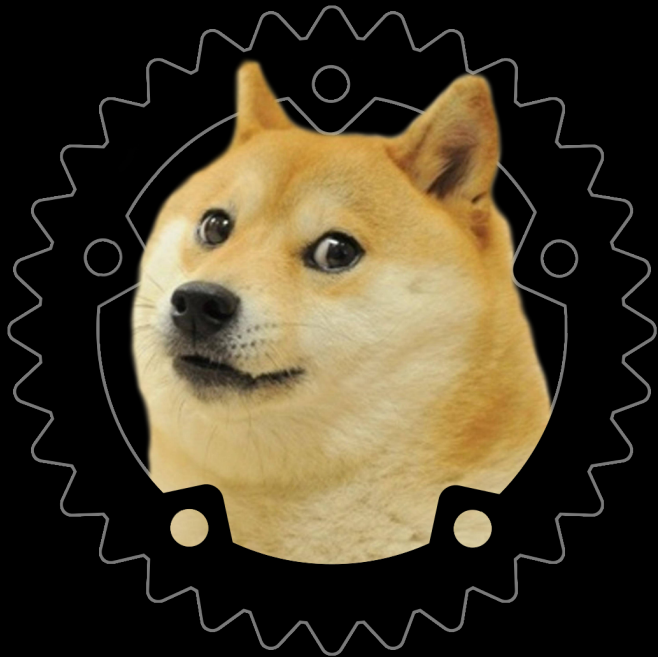
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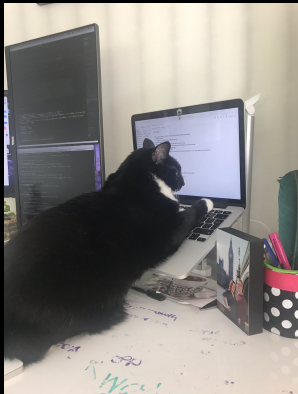



Questions?

Rust safe, fast systems language

Servo parallel browser engine in Rust

WebAssembly multiple language execution on web



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