"Our Vision for Rust"

RustWeek 2025 Industry Track

by Nicholas Matsakis
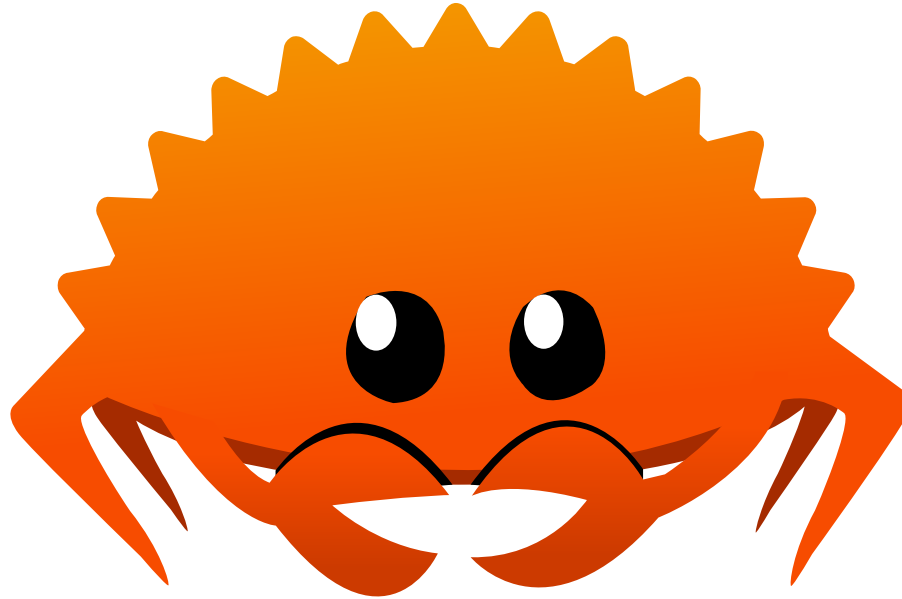
Who am I?

Co-lead of the Rust language design team

Senior Principal Engineer at Amazon

What hats am I wearing now?

What hats am I wearing now?

None of those!

Current focus

Rust vision doc goal

What is the vision doc?

Attempting to answer the question:

What comes next for Rust?

It begins with data

Capture feedback from Rust users, maintainers, and adopters

What is working well? What could be better?

What big picture goals should Rust pursue to move the needle?

Synthesizing

Read through the data, identify themes

Expected result

About Rust

- "What is Rust's mission?"
- "What do people value most in Rust? When do they choose to use Rust and why?"
- "What would help Rust to succeed in domain X?"
- "What would help Rust to succeed in area X?"

Expected result

About Rust

- "What is Rust's mission?"
- "What do people value most in Rust? When do they choose to use Rust and why?"
- "What would help Rust to succeed in domain X?"
- "What would help Rust to succeed in area X?"

About how we build Rust

- "How can we tap into the knowledge, experience, and enthusiasm of a growing Rust userbase to improve Rust?"
- "How can we make contributing to Rust **joyful?**"

What is Rust's *mission*?

It's time for us to think beyond "adoption"

What is Rust *for*?

- Async systems?
- CLI tools?
- Embedded development?
- Web sites?
- Bash scripts?

What is Rust *optimized for*?

My take: **Foundational software**

What foundational software needs to be

- Reliable and secure: **if it compiles, it works**
- Performant: **zero-cost abstractions**, **fearless concurrency**
- Stable: **stability without stagnation**
- Low-level control: **TBD** (1)

(1) We...don't have an establish slogan for this. I tend to think "**no limits**" in my head.

What foundational software SHOULD NOT be

- Inaccessible and obscure

Foundational software needs non-foundational software

The value of versatility

Thinking beyond adoption

What is Rust's *mission*?

Foundational software for everyone

Why the vision doc?

To help us have some needed conversations

Wearing my Amazon hat...

Rust application domains

- At-scale network services in AWS
- Consumer devices

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Memory safety is a key enabler

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Ecosystem is great but...

- Rising regulatory requirements
- Single-maintainer crates
- Upgrades make me nervous

Main groups

- Individual Rust users

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- Global Rust communities

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- **Companies adopting or considering Rust**

What I want to hear from you

- Your company's journey to Rust (or not).
- Describe your experiences onboarding folks to Rust.
- What have you used Rust for? What worked well?
- Where have you found Rust does not work well?
- What concerns do you hear about using Rust?

How we work

- Interviews, 30-45 minutes
- No wrong answers

Call to action

Surprise! We're going to be running a series of 5 interview slots today!

https://calendly.com/nikomatsakis/rustweek-industry-track

If you'd like to participate, go ahead and sign-up! One per company.

If you don't get a slot, email me at rust@nikomatsakis.com and I'll add you to the pool of potential interviewees.