The Pragmatic Programmers

Programming Crystal

Create High-Performance, Safe, Concurrent Apps

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edited by Andrea Stewart

- Games and graphic renderers
- Small utility programs
- IoT applications

Crystal could play a key role in helping Ruby-based startups take their performance to the next level. If you need to optimize parts of a Ruby project, it makes more sense to port code to Crystal than to C or Go.

Some 15 companies, such as ProTel, Bulutfon, DuoDesign, Appmonit, RainForest QA, and Manas itself, already use it for production projects. Some of them, such as ProTel and Bulutfon, experienced scaling problems with their Ruby server infrastructure. For that reason, they rewrote their web service using the Kemal framework in Crystal. In one instance at ProTel, 100 Unicorn workers could be replaced by a single Kemal process to do the same amount of work.

A Company's Story Crystallized: Red Panthers

P. S. Harisankar is the founder, CEO, and CTI of Red Panthers,[14] which is a Ruby on Rails development studio that builds web and mobile applications. It is based in Cochin, India and Wyoming, USA.

> ***Ivo:*** *What production projects do you use Crystal for?*
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> ***P. S. Harisankar:*** *We have a POS (Point Of Sale) system that reads RFID tags from a reader and displays them on a web page. Then the user commits this data to our cloud server, which marks the sale. The cloud app is built in Ruby on Rails.*
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> ***Ivo:*** *Why did you decide to use Crystal for these applications?*
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> ***P. S. Harisankar:*** *Our local dashboard for the previous POS system was too slow: delay of seconds during a sale is not acceptable. The client required a better response time at the local readers, so we rewrote it in Crystal and are now able to provide a 10 to 15 micro-second response, a 200,000x improvement!*
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> *We are a Ruby on Rails firm, and if Crystal hadn't existed, our client was leaning toward C++ or Go since we had also worked in Go before. But using Crystal felt more natural for us as we already have parts of the code written in Ruby. It helped us to easily port these to Crystal.*
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> ***Ivo:*** *What types of problems does Crystal solve best?*
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> ***P. S. Harisankar:*** *Right now, Crystal is our go-to tool when it comes to building an executable application or doing system programming (managing printers,*

14. https://redpanthers.co

- Rainforest:[53] This company specializes in QA testing for web and mobile apps, and exploratory testing. It uses Kemal for microservices.
- Bulutfon:[54] This company offers VOIP solutions in Turkey. It also had scaling problems with Ruby, which were solved by changing to Kemal.

Kemal is somewhat different from other approaches. For static file service, Kemal is fast enough that there is no need to use Nginx for that. However, if Kemal's lack of multithreading worries you, put Nginx in front of Kemal in a reverse proxy setup, as they work well together. Port reuse might also be a simple answer. The Kemal app server doesn't handle process management, supervision, and monitoring, so use specialized apps such as Monit or init.d, or runit for process supervision.

Wrapping Up and Afterword

In this chapter, we looked at the strength of Crystal in the web world: its built-in fast http-server, the lightweight and blazingly fast Kemal web framework, and lastly, the full-fledged Amber web framework. You also got the keys to the treasure chest of Crystal shards.

This brings us to the end of our Crystal journey in this book. We hope you've enjoyed it as much as we enjoyed writing it. We hope that this whirlwind overview has shown you why Crystal is a rising star in the software development world, and why you'll want to use Crystal in your projects. Join the Crystal community[55] and apply your coding talents. Perhaps we'll meet again in the Crystal universe.

53. https://www.rainforestqa.com
54. https://www.bulutfon.com
55. https://crystal-lang.org/community/

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