

ELIXIR FOR STARTERS

by

Fabian Król & Maciek Talaśka

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WHAT IS ELIXIR?

YET ANOTHER LANGUAGE?

ELIXIR IS:

- functional
- concurrent
- general purpose
- running on top of **BEAM (Erlang VM)**
- **uses actor model**

ELIXIR HISTORY

- created by Jose Valim, Rails core team member
- "how to make Ruby concurrent"
- BEAM + Ruby syntax = Elixir
- erlang's core ideas + ruby's developers first approach

ELIXIR: ERLANGER PERSPECTIVE

- modern language
- better tooling
- big vibrant community
- opensource is in roots of Elixir
- metaprogramming, macros, ...

ELIXIR: RUBY PERSPECTIVE

- functional programming
- performance
- concurrency
- distribution

ELIXIR PREHISTORY

AKA. ERLANG: THE MOST BORING LANGUAGE

BEAM

- industry battle tested
- scheduler per CPU core
- lightweight processes
- no shared memory
- process isolation
- failure isolation

ACTOR MODEL 101

- mathematical model of concurrent computation
- no shared state between actors
- asynchronous message passing to other actors
- actor reacts to messages

ERLANG

- designed to build telecom systems
- OTP *Open Telecom Platform*

BEAM, ERLANG, ELIXIR

- Erlang ~ Java
- Beam ~ JVM
- Elixir ~ Scala

OTHER BEAM BASED LANGUAGES

- LFE
- Clojerl
- alpaca
- gleam
- efene
- ephp
- joxa

(source: https://github.com/llaisdy/beam_languages)

LET'S CONTINUE ON ELIXIR...

TOOLING

- hex.pm - the package manager
- mix - build tool
- mix can handle all day to day development tasks

ERLANG IN ELIXIR

- tooling: dialyzer, observer
- tracing: debug/trace live systems
- Elixir standard library != Erlang standard library ...
- ... but it is possible to use Erlang lib
- easy to use Erlang projects from Elixir

PHOENIX

- web framework
- inspired by Rails
- it is *NOT* Rails!
- unique: LiveView

ECTO

- inspired by ActiveRecord
- inspired, but... it is *NOT* ActiveRecord for Elixir/Phoenix
- works with RDBMS
- ...and with NoSQL

NERVES

- works on popular devices (Raspberry Pi)

*"Phoenix may bring jobs for Elixir today,
Nerves is about future".*

ELIXIR SUCCESS STORIES

- Netflix
- WhatsApp*
- SquareEnix
- bet365
- Discord

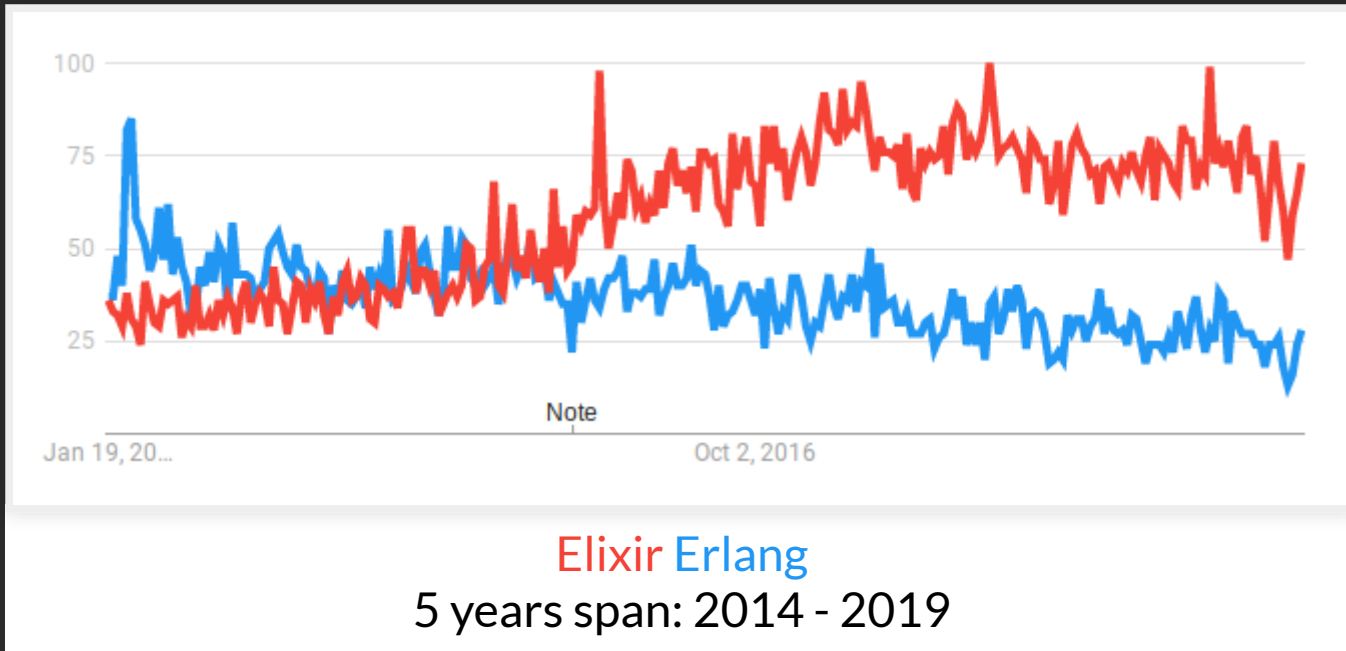
COMMUNITY

- the best ideas taken from Ruby community
- friendly, welcome
- open discussions, everyone is welcome
- growing fast

ELIXIR TODAY

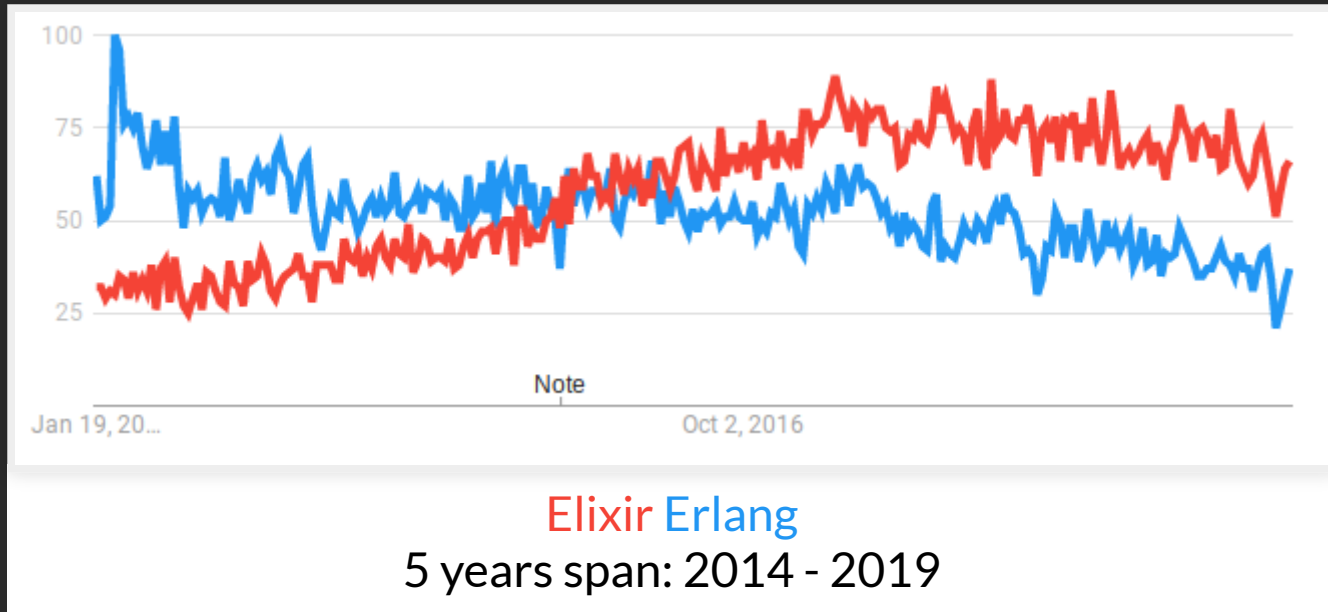
- vibrant community
- Elixir borrowed from Erlang a lot...
- ...but also influences today's Erlang

ELIXIR & ERLANG POPULARITY (USA)



(source: <https://trends.google.com>)

ELIXIR & ERLANG POPULARITY (WORLD)



(source: <https://trends.google.com>)

ELIXIR & ERLANG ON TIOBE

Erlang: 50

Elixir: 50+

(source: <https://www.tiobe.com/tiobe-index/>)

ELIXR & ERLANG @ SO:

Erlang: 8341

Elixir: 562

(as of: 2019-01-19)

FUTURE OF ELIXIR & ERLANG

*Elixir is the future of Erlang
systems --Fabian*

IS ELIXIR GOOD FOR ME...
...AND MY PROJECT

ELIXIR IS GREAT FOR:

- distributed systems
- fault tolerant
- highly scalable systems
- high uptime systems (it is not pick 2 out of 3. get **ALL**)
- low latency vs high throughput
- prototyping

ELIXIR IS GOOD FOR

1. Web development (Phoenix, Ecto)
2. IoT (Nerves)
3. WebAssembly?
4. Scripting

WHAT IS ELIXIR **NOT** GOOD FOR?

1. Heavy computations
2. Systems programming
3. Direct hardware interaction (drivers)
4. GPGPU, realtime graphics...
5. Desktop applications

STARTING WITH ELIXIR

LEARNING RESOURCES

- awesome elixir: <https://github.com/h4cc/awesome-elixir>
- Programming Phoenix 1.4 (Chris McCord, Bruce Tate, Jose Valim)
- Programming Elixir 1.6 (Dave Thomas)
- Metaprogramming Elixir (Chris McCord)
- Elixir in Action, 2nd ed (Sasa Juric)
- The little Elixir & OTP book (Benjamin Tan Wei Hao)
- podcasts & screencasts: <https://github.com/elixir-lang/elixir/wiki/Podcasts-and-Screencasts>

INSTALLATION

1. Get Erlang (<https://www.erlang-solutions.com/resources/download.html>)
2. Install Elixir (<https://elixir-lang.org/install.html>)
 - binary package or use version manager (asdf)
3. Install PostgreSQL
(<https://blog.pragtechnologies.com/phoenix/>)

DO I NEED AN IDE FOR ELIXIR?

- Elixir is **functional**, so...
- Spacemacs + alchemist plugin
- PyCharm(!) + Elixir plugin
- Vim + alchemist.vim
- Visual Studio Code /Atom
- SublimeText3

WHERE DO I DEPLOY?

- Gigalixir: <https://gigalixir.com>
- Heroku

SUMMARY

WHAT YOU SHOULD REMEMBER

ERLANG IS TO JAVA...

Beam ~ Jvm

Erlang ~ Java

Elixir ~ Scala

ELIXIR IS

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- concurrent
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ELIXIR TECH FOR STARTERS

Phoenix ~ Rails for Elixir

Ecto ~ ActiveRecord for Elixir

Nerves - IoT for Elixir

You do not have to learn Erlang to use Elixir

COMMON QUESTIONS

(FUTURE MEETINGS)

1. Elixir vs Kubernetes
2. Elixir vs Serverless
3. Elixir vs Cloud
4. Elixir vs Akka & Pony
5. Elixir vs Dart

THANKS!

<https://elixir-wroclaw.github.io/>

NETWORKING