

# Clojure Presentation

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# Outline

About Me

Clojure

Hosts

Rich Hickey's Greatest Hits

# About Me

## Experience

- ▶ Huntsville - 2010
- ▶ UA Huntsville - Computer Science
- ▶ 10 years - Developer
- ▶ 07 years - Functional
- ▶ 03 years - Clojurian

## Functional Journey

- ▶ Haskell -> Clojure -> Erlang/Elixir -> Haskell -> Clojure

# Clojure

## Rationale

*Clojure is a robust, practical, and fast programming language and ecosystem with a set of useful features that together form a simple, coherent, and powerful tool. – Rich Hickey*

# History

- ▶ Released 2007
- ▶ BDFL - Rich Hickey
- ▶ Wanted mainstream acceptability with much simpler programming model
- ▶ Hosted
- ▶ Functional Lisp

# JVM

- ▶ Industry Standard
- ▶ Direct Interop
- ▶ Clojure libraries + Java libraries
- ▶ Small core, extension via libraries

# Lisp

- ▶ Common Lisp
- ▶ Emacs Lisp
- ▶ Scheme / Racket
- ▶ S-expressions
- ▶ () - list
- ▶ (fn args) - list

# It's just data

- ▶ data structures are code
- ▶ code is data structures
- ▶ literal



# Data Samples

```
'(1 2 3 4) ;; list
```

```
[1 2 3 4] ;; vector
```

```
#{1 2 3 4} ;; set
```

```
{:one 1 :two 2 :three 3 :four 4} ;; hash map
```

```
"{"one":"1", "two":"2", "three":"3", "four":"4"}"
```

# Functional

```
(* 1 4 5 6)
(fn [x y] (+ x y))
(def add-two (fn [x] (+ x 2)))
(defn add-two [x] (+ x 2))

{:one 1 :two 2 :three 3 :four 4}

(def small-map {:a 2 :b 4 :c 8})
(:b small-map)
```

# Literate Programming

# REPL driven development

Editor	REPL
VSCode	Calva
Emacs	Cider
Neovim	Fireplace
JetBrains	Cursive

# Clojure at Torch Technologies

Video Hub Engine / Scene Builder

UE4 remote control client

# Testing

- ▶ Rich comments
- ▶ Hyperfiddle/rcf

# Logging

- ▶ Java interop
- ▶ Timbre (Clojure only)

# Package Management

## Leinengen

- ▶ batteries included



Figure: From leiningen.org

## Clojure CLI

- ▶ official

## Clojars



# Deployment

- ▶ lein uberjar
- ▶ CLI scripts

# Official

## JVM

- ▶ <https://clojure.org>

## Javascript

- ▶ <https://clojurescript.org/>

## CLR

- ▶ <https://github.com/clojure/clojure-clr>
- ▶ ClojureCLR.Next
- ▶ <https://dmiller.github.io/clojure-clr-next/general/2023/01/06/clojureclr-reconsidered.html>

# Unofficial

## BEAM

- ▶ <https://github.com/clojerl/clojerl>

## Python

- ▶ <https://github.com/clj-python/libpython-clj>

# Greatest Hits

- ▶ <https://changelog.com/posts/rich-hickeys-greatest-hits>
- ▶ [https://www.youtube.com/playlist?list=PLXsqD83He-e5oUh\\_DFrHb03MoNj3tG8Vh](https://www.youtube.com/playlist?list=PLXsqD83He-e5oUh_DFrHb03MoNj3tG8Vh)