ClojureScript

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2012-08-12 Sun

Outline

Hello World!

- Clojure

  ```
  (println "Hello World!")
  ```

- ClojureScript

  ```
  (.log js/console "Hello World")
  ```

Clojure?

- Modern LISP
- Targets the JVM
  - Great Java-Interop
- Persistent Data Structures
- Easy concurrent programming
  - Built-in STM
  - Reactive Actors ('Agents')
  - Good encapsulation of State

ClojureScript?

- All advantages of Clojure
  - Functional Programming
  - Persistent Data Structures
  - Great Host Interop
- Runs in the Browser
  - Wide target range
- No eval

ClojureScript!

- **TODO** Created by Rich Hickey in %%DATE%%
- Clojure Compiler which targets Javascript
- Same Runtime as Clojure
  - ▸ Data Structures
  - ▸ clojure.core
  - ▸ Code Sharing possible
- Cleaner Codebase
  - ▸ 100% Clojure, no Java/Javascript
  - ▸ Much of Clojure is implemented in Java

Why target Javascript?

- Faster startup time
- Widespread platform (Browsers)
- Node.js
- Advantages when using same code Server- and Client-Side

Platform Interop

- Function calls

  ```
  (.log js/console "Foobar")
  ```

  ```
  (js/alert 42)
  ```

- Properties

  ```
  (.-location js/window)
  ```

  ```
  (set! (.-prop obj) "Foo")
  ```

DOM Manipulation

- Google Closure
- jQuery

Google Closure
Javascript Library by Google

- Advantages
  - Used by ClojureScript itself
  - Very rich library containing many kinds of UI elements
  - Integrates nicely with the Google Closure compiler

- Disadvantages
  - Hard to use
  - Model-View-Presenter (TODO: Really?)
  - Usually hard to integrate in legacy codebases
  - As of May 2012: No way to set data-attributes

jQouery

- Advantages
  - More concise to use
  - Widely known
  - Nice wrappers available (jayq)

- Disadvantages
  - Syntax doesn't integrate very good
  - Uses own Array type which doesn't work out-of-the-box with Clojure's Sequence abstractions

Closure Compiler

Size of generated Code

Available Libraries

ClojureScript One

Integrated Development Environments

TODO Recent: Pluggable Backends
Summer of Code Project by `NAME`

- Lexer extracted from monolithic Compiler
- Compiler implemented as modular Backend
- Soon:
    - Lua
    - Python
    - C
    - Malbolge?

Source Maps

Reactive Programming

- add-watch
  'add-watch' currently features