



CocoaHeads Aachen

Server-side Swift

2016-08-25

Ulrich Platt, Michael Plagge

Agenda

- ✦ Motivation for Server-side Swift
- ✦ Concepts / Architecture(s)
- ✦ Pros & Cons
- ✦ Requirements
- ✦ Status
- ✦ In depth:
 - ✦ Frameworks Overview
 - ✦ Swift@IBM / Kitura Web Framework

Motivation

Talking about Server-side Swift

- ✦ Personal motivation
 - ✦ Reminiscence of WebObjects
 - ✦ Web Frameworks
 - ✦ Ruby on Rails

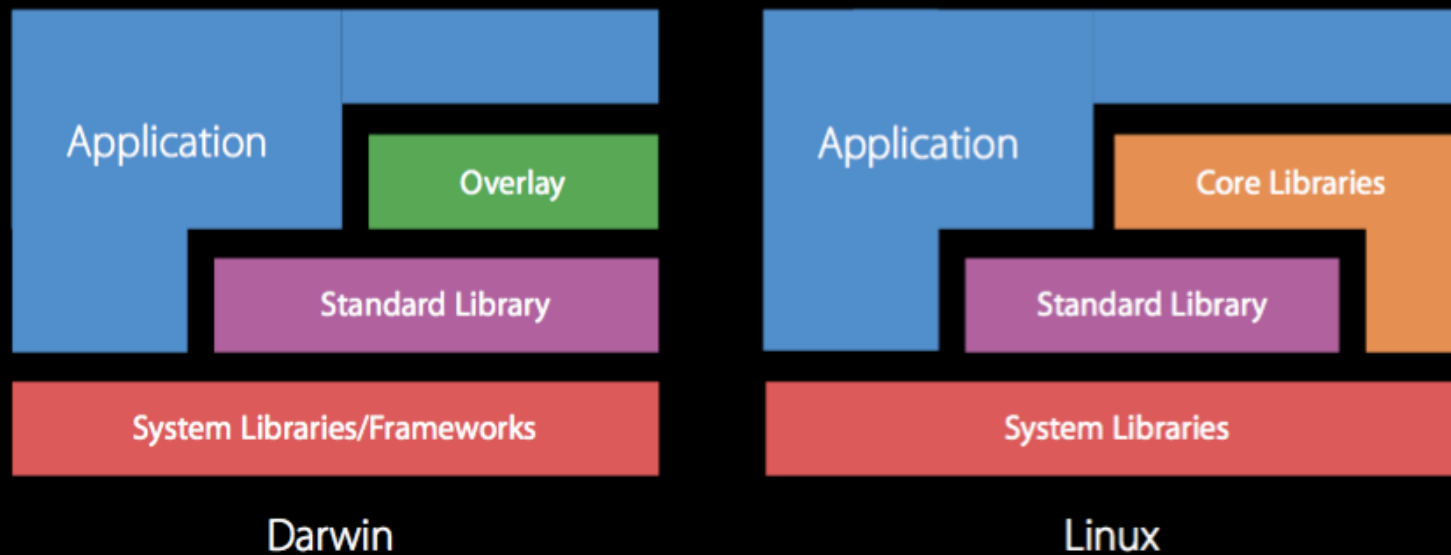
What it is about

Concepts / Architecture(s)

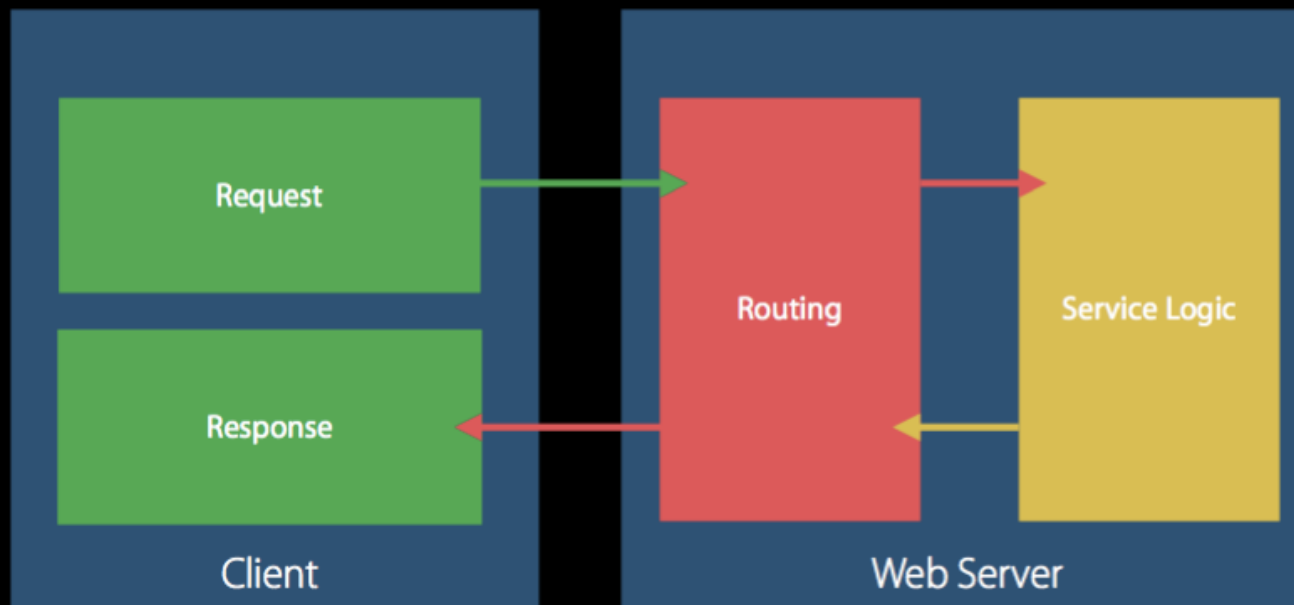
- ✦ Creating Server Applications
 - ✦ backend for mobile applications
 - ✦ server-applications
- ✦ Running on Webservers
- ✦ Basically supporting the HTTP Interface

What it is about Concepts / Architecture(s)

<https://developer.apple.com/videos/play/wwdc2016/415>



What it is about Concepts / Architecture(s)



Safari

Linux / Docker

<https://developer.apple.com/videos/play/wwdc2016/415>

Pros & Cons

Advantages

- ✦ Same...
 - ✦ programming language
 - ✦ development environment
 - ✦ for server-side processing and for the client
- ✦ „Seamless Integration“
 - ✦ deployment
 - ✦ to the server: Kitura, Heroku, Docker, ...
 - ✦ locally: macOS

Pros & Cons

Advantages

- Speed
 - at runtime
 - opposed to...
 - Ruby, Python, PHP, ...
 - during development
 - same technology
 - same people (full-stack developers)

Pros & Cons

Advantages

- Safety
 - null-pointers etc.
 - type safety

Pros & Cons

Advantages



<https://stormpath.com/blog/swift-on-the-server-today>

Pros & Cons

Disadvantages

- ✦ Not all Foundation Classes available
 - ✦ Example: NSURLSession has to be substituted with curl or other (linux) binaries
- ✦ Many Frameworks
 - ✦ different focus & maturity
- ✦ Runtime
 - ✦ may be limited
 - ✦ certain linuxes
 - ✦ deployment services

Requirements

- ✦ Swift...
 - ✦ 2.3, 3, development snapshots (...)
- ✦ Linux
 - ✦ for deployment
 - ✦ VM also suitable
 - ✦ External Services
- ✦ macOS

Status

- ✦ Swift versions vs. Framework versions
- ✦ yet instable
- ✦ almost breaking unless Swift 3

In depth

Frameworks Overview

- Dozens available (in the wild)
- Focus on 4 most popular (according to GitHub stars) Frameworks
 - Perfect.org
 - Vapor
 - IBM Kitura
 - Zewo

In depth

Frameworks Overview: Perfect.org

- ✦ Currently in Transition
 - ✦ Swift 2.x -> 3
 - ✦ Orphaned Documentation / Tutorials
- ✦ Multiple Deployment Options
 - ✦ Heroku
 - ✦ Docker
 - ✦ AWS
 - ✦ ...

In depth

Frameworks Overview: Vapor

- ✦ <https://vapor.codes>
- ✦ Lean & well documented
- ✦ Swift 3 (development snapshots)
- ✦ Little / hidden deployment documentation
- ✦ Partners with Zewo for Open Swift

In depth

Frameworks Overview: IBM Kitura

- ✦ <https://developer.ibm.com/swift/kitura/>
- ✦ IBM sees Swift as Java's enterprise language successor
- ✦ macOS / Xcode can serve as the single platform for development **and** debugging
- ✦ Robust Deployment options available (IBM Bluemix)

In depth

Frameworks Overview: Zewo

- ✦ <http://www.zewo.io>
- ✦ Interesting Architecture
 - ✦ extremely modular
 - ✦ 50+ Swift Packages
 - ✦ Base Components are compatible with Vapor
 - ✦ Middleware, Request, Response, ...
 - ✦ via Open Swift

In depth

Swift.org

- ✦ Central place for swift language on all platform
 - ✦ <https://swift.org>
 - ✦ platforms: Linux and Mac
 - ✦ Foundation, Dispatch & XCTest
 - ✦ Foundation not yet supported completely on Linux
 - ✦ for details see Philippe Hausler's talk on session 415

In depth

Swift@IBM

- ✦ IBM Swift Sandbox
 - ✦ <https://swiftlang.ng.bluemix.net/#/repl>
 - ✦ interactive website to run enterprise swift code on Linux
 - ✦ „playground“ style
- ✦ Swift Package Catalog
 - ✦ <https://swiftpkgs.ng.bluemix.net>
 - ✦ central repository for Swift packages running on different platform
 - ✦ 1.500+ packages compliant to swift package manager

In depth

Swift@IBM

- ✦ Kitura Web Framework
 - ✦ <https://swiftpkgs.ng.bluemix.net/package/IBM-Swift/Kitura>
 - ✦ web framework based on libdispatch and Foundation
 - ✦ installation on macOS, Ubuntu Linux, Docker (Linux)
 - ✦ self contained Swift Package
- ✦ see Session 415, John Ponzio's talk

In depth

Swift@IBM

- ✦ Swift Cloud computing
 - ✦ IBM's cloud computing platform bluemix
 - ✦ <http://www.ibm.com/cloud-computing/bluemix/de-de/>
 - ✦ IBM cloud tools for Swift: cloudtools.bluemix.net
 - ✦ Tool integrates client and server xcode projects and runtime control
 - ✦ local debugging by using Linux docker container on the development system
- ✦ For Live Demo how to use see Session 415, Pat Bohrer's talk

- **WWDC2016**

- Session 415: „Going Server-side with Swift Open Source“
<https://developer.apple.com/videos/play/wwdc2016/415>

- **Ed Jiang**

- Blog: „Swift on the Server – Where Are We Today?“
<https://stormpath.com/blog/swift-on-the-server-today>
- Video & Speakerdeck: „Super Spectacular Server-Side Swift!“
<https://realm.io/news/slug-edward-jiang-server-side-swift/>

Credits

Resources Swift / Swift@IBM

- ✦ Central place for Swift
<https://swift.org>
- ✦ IBM Swift Sandbox
<https://swiftlang.ng.bluemix.net/#/repl>
- ✦ Swift Package Catalog
<https://swiftpkgs.ng.bluemix.net>
- ✦ IBM Kitura Package
<https://swiftpkgs.ng.bluemix.net/package/IBM-Swift/Kitura>
- ✦ IBM Cloud Tools for Swift
<http://cloudtools.bluemix.net>

Thank you!

Ullrich Platt, ullrich.platt@t-online.de

Michael Plagge, cocoaheads@plagge-it.de