Swift Buildpack for Cloud Foundry

- Dec 3, 2015 Swift is Open Source
- swift.org
- Public source repo at github.com/apple
- Platform support for all Apple platforms as well as Linux
- new Swift package manager project for easily sharing and building code

Swift Package Manager

- tool for managing distribution of source code
- addresses the challenges of compiling and linking Swift packages
- manages dependencies and versioning
- WIP => Swift 3

SPM - Installation

- https://swift.org/download/
- swift build —help

```
<unknown>:0: error: no such file or directory: 'build'
```

Executable

- foo/Package.swift
- foo/Sources/main.swift

★ **swift build** will build a single executable called **foo**

Library Package

```
example-package-playingcard
├── Sources
│   ├── PlayingCard.swift
│   ├── Rank.swift
│   └── Suit.swift
└── Package.swift
```

Library Package

```
example-package-playingcard
└── .build
    └── debug
        ├── PlayingCard.a
        ├── PlayingCard.o
        ├── PlayingCard.swiftdoc
        └── PlayingCard.swiftmodule
```

Multiple Modules

- example/Sources/foo/foo.swift
- example/Sources/bar/bar.swift

```
Compiling Swift Module 'foo' (1 sources)
Compiling Swift Module 'bar' (1 sources)
Linking Library:  .build/debug/foo.a
Linking Library:  .build/debug/bar.a
```

Dependencies

```
import PackageDescription

let package = Package(
    name: "DeckOfPlayingCards",
    targets: [],
    dependencies: [
        .Package(url: "https://github.com/apple/example-package-fisheryates.git",
                 majorVersion: 1),
        .Package(url: "https://github.com/apple/example-package-playingcard.git",
                 majorVersion: 1),
    ]
)
```

CLOUD
FOUNDRY™

Cloud Foundry

- open source cloud computing PaaS
- develop, run, and manage web applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an app

Cloud Foundry

- cf target <any cloud>
- cf push APP_NAME
- cf create-service SERVICE PLAN SERVICE_INSTANCE
- cf bind-service APP_NAME SERVICE_INSTANCE
- cf scale APP_NAME -i 10 -m 1G

Buildpack

- provide framework and runtime support for your applications

- examine user-provided artifacts to determine what dependencies to download

- how to configure applications to communicate with bound services

Swift Buildpack for CF

```
$ ls
Procfile Project.swift Sources

$ cf push -b https://github.com/cloudfoundry-community/swift-buildpack.git
-----> Downloaded app package (4.0K)
-----> Downloaded app buildpack cache (171M)
-----> Buildpack version 1.0.0
-----> Installing Swift 2.2
       Downloaded Swift
-----> Installing Clang 3.7.0
       Downloaded Clang
-----> Building Package
       Cloning Packages/Curassow
       Cloning Packages/Nest
       Cloning Packages/Inquiline
       Cloning Packages/Commander
       Compiling Swift Module 'Nest' (1 sources)
       Linking Library:  .build/release/Nest.a
       Compiling Swift Module 'Inquiline' (3 sources)
       Linking Library:  .build/release/Inquiline.a
       Compiling Swift Module 'Commander' (8 sources)
       Linking Library:  .build/release/Commander.a
       Compiling Swift Module 'Curassow' (7 sources)
       Linking Library:  .build/release/Curassow.a
       Compiling Swift Module 'HelloWorld' (1 sources)
       Linking Executable:  .build/release/HelloWorld
-----> Copying dynamic libraries
-----> Copying binaries to 'bin'
```

Procfile

```
web: HelloWorld --workers 3 --bind 0.0.0.0:$PORT
```

Specify a Swift Version

```
$ cat .swift-version
2.2
```

Debugging

cf set-env <appname> BP_DEBUG 1

Demo