

# Going Server-side with Swift Open Source

Session 415

Philippe Hausler Frameworks Engineer

John Ponzio IBM MobileFirst CTO

Patrick Bohrer Swift Technical Lead, IBM

# Agenda

Why Server-side Swift

Architecture

What's Included

Examples

Contribution



# Server-side Swift

Benefits

# Server-side Swift

## Benefits

Same code runs in both places

# Server-side Swift

## Benefits

Same code runs in both places

Reduce development time by sharing code

# Server-side Swift

## Benefits

Same code runs in both places

Reduce development time by sharing code

Leverage great APIs on the server

# Architecture



The diagram illustrates the architecture of two operating systems. On the left, under the label 'Darwin', there is a red rectangular block containing the text 'System Libraries/Frameworks'. On the right, under the label 'Linux', there is a red rectangular block containing the text 'System Libraries'. The blocks are positioned at the bottom of the slide, with the Darwin block on the left and the Linux block on the right.

System Libraries/Frameworks

Darwin

System Libraries

Linux

# Architecture



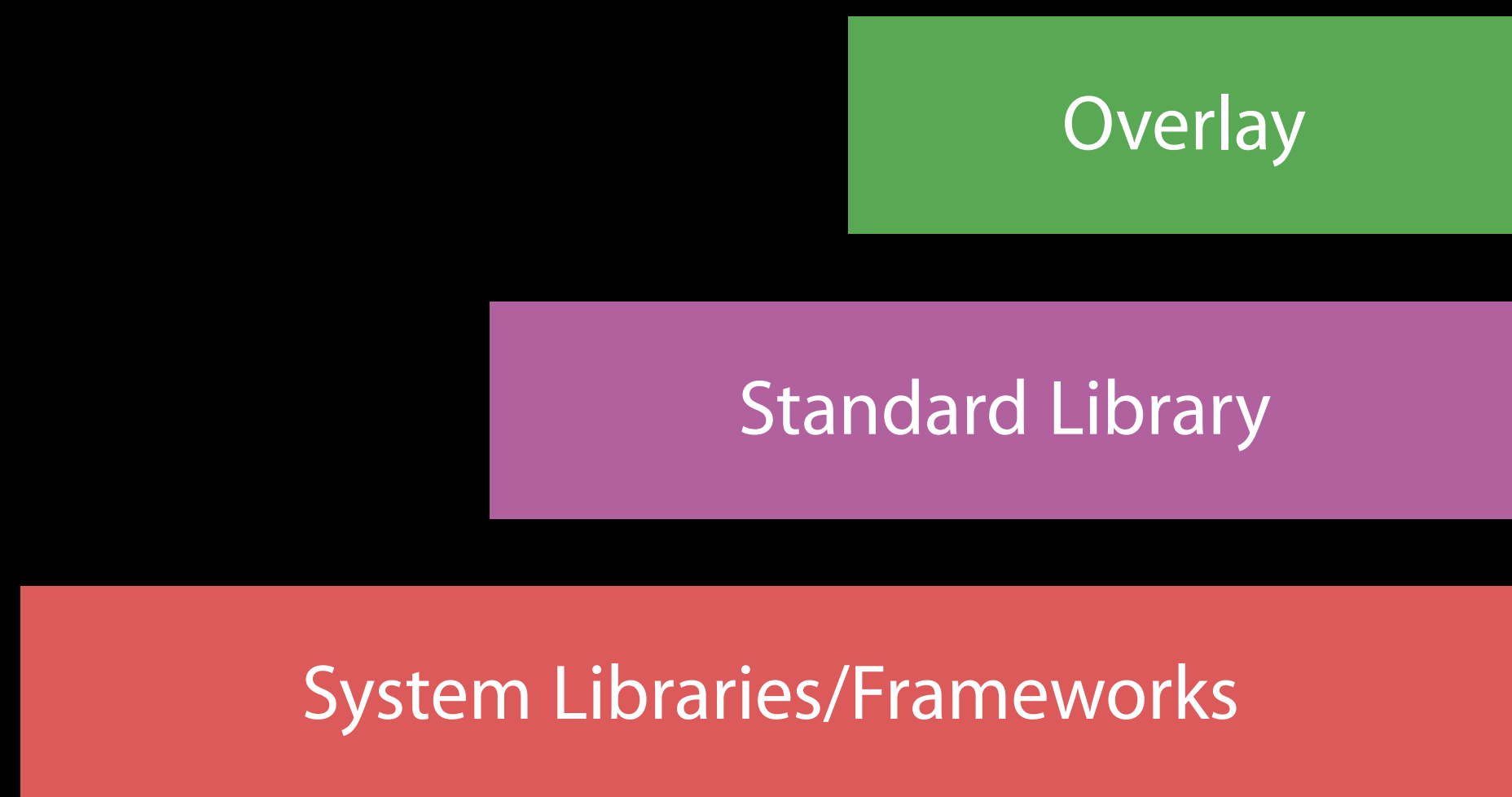
Darwin



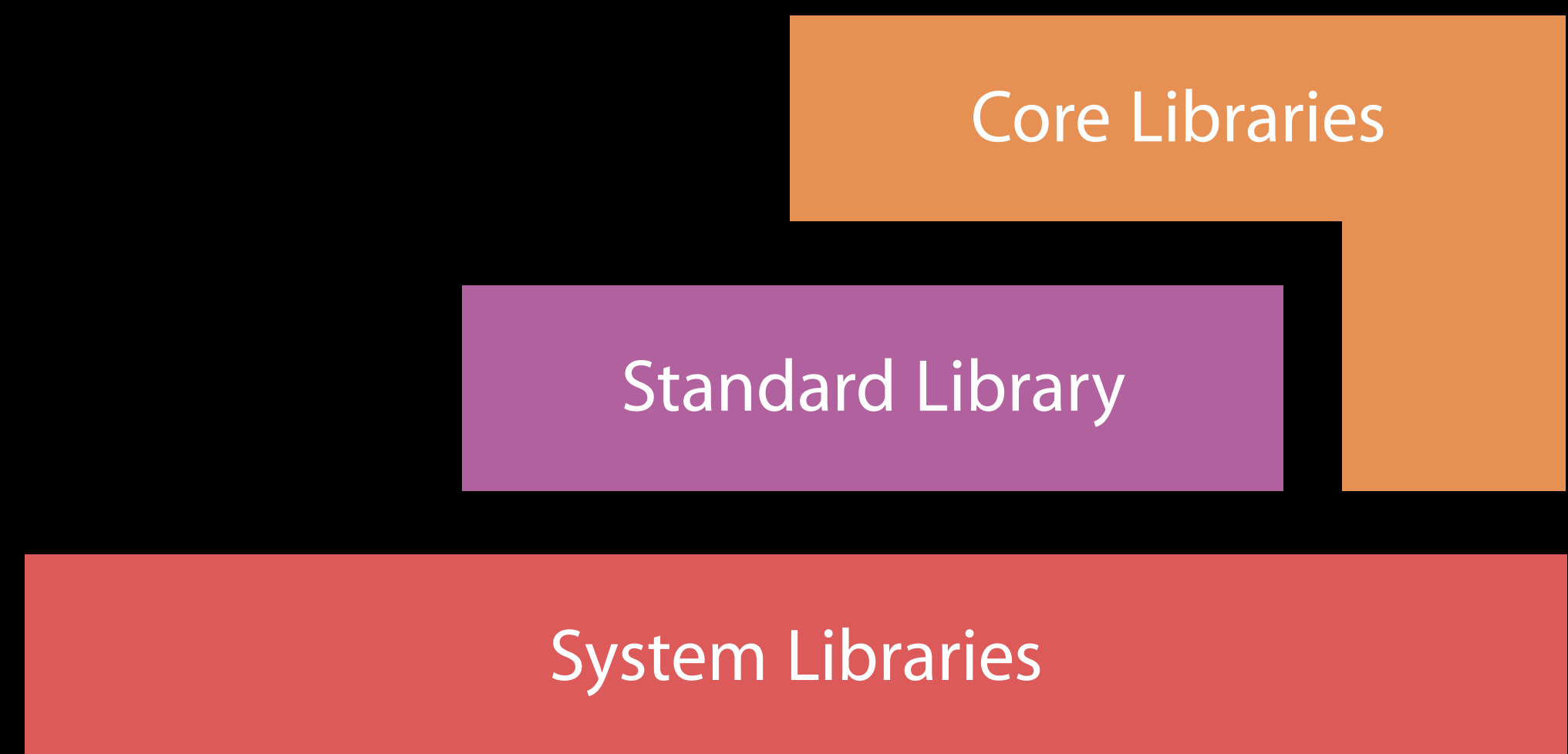
Linux



# Architecture

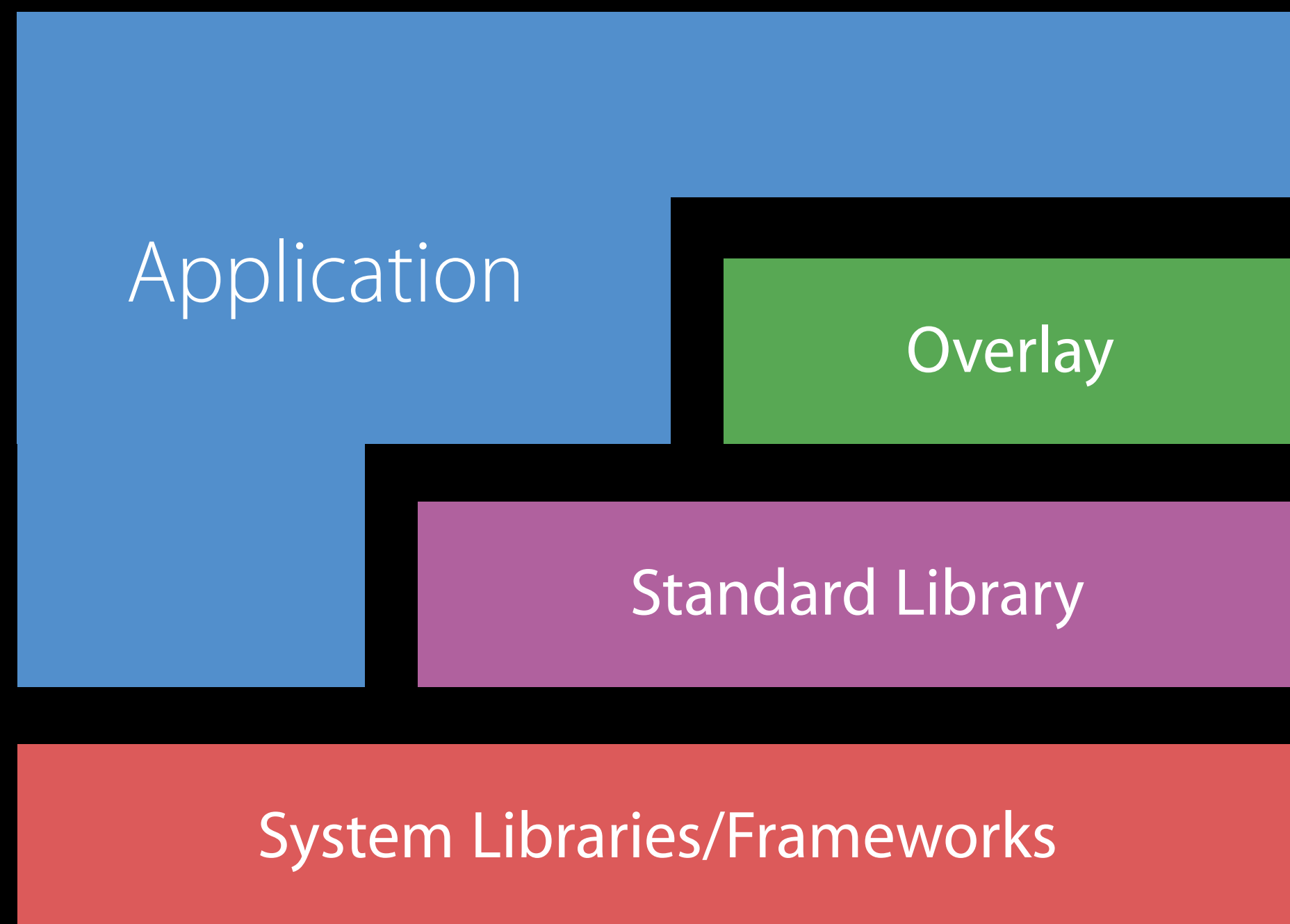


Darwin

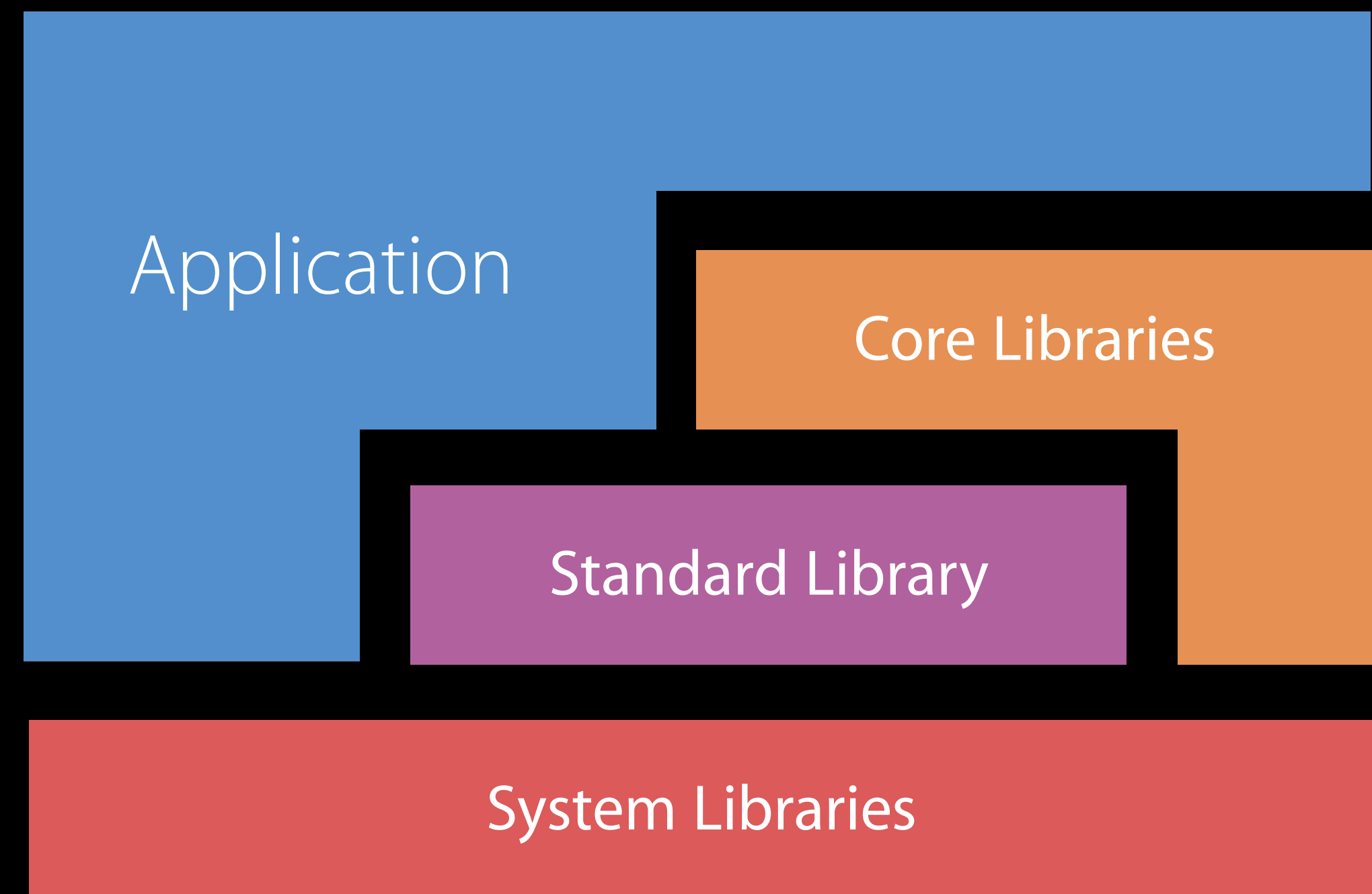


Linux

# Architecture

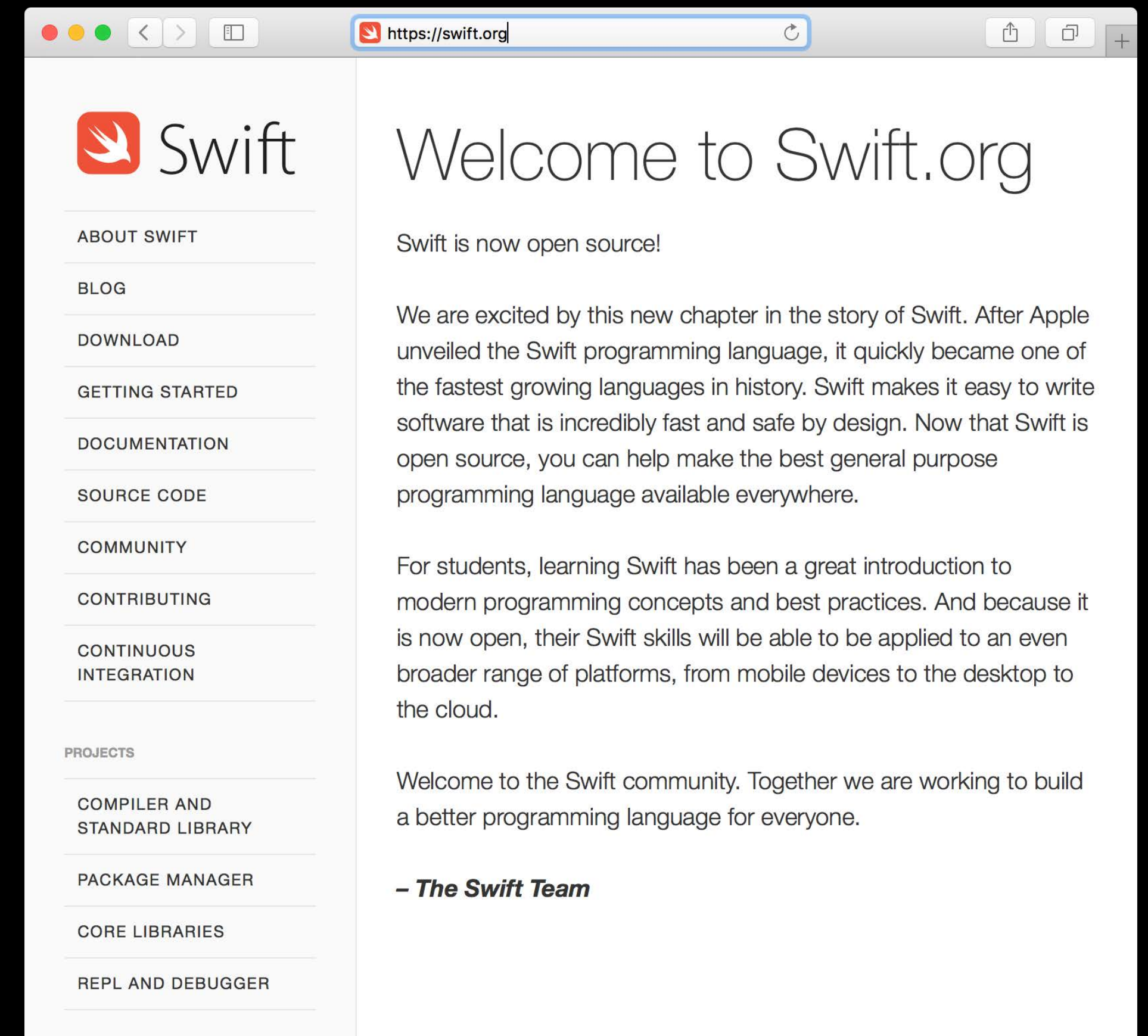


Darwin



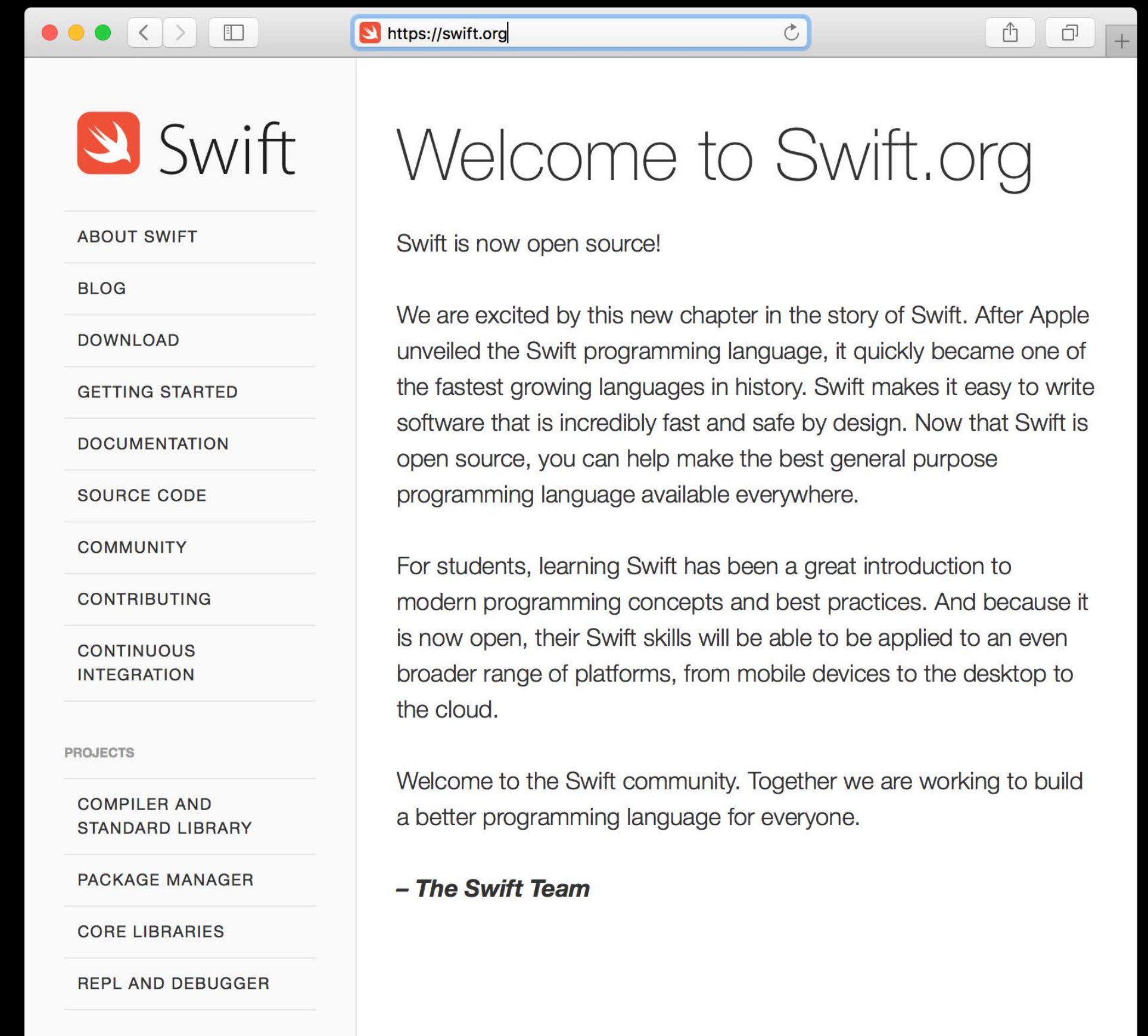
Linux

# What's In Included projects



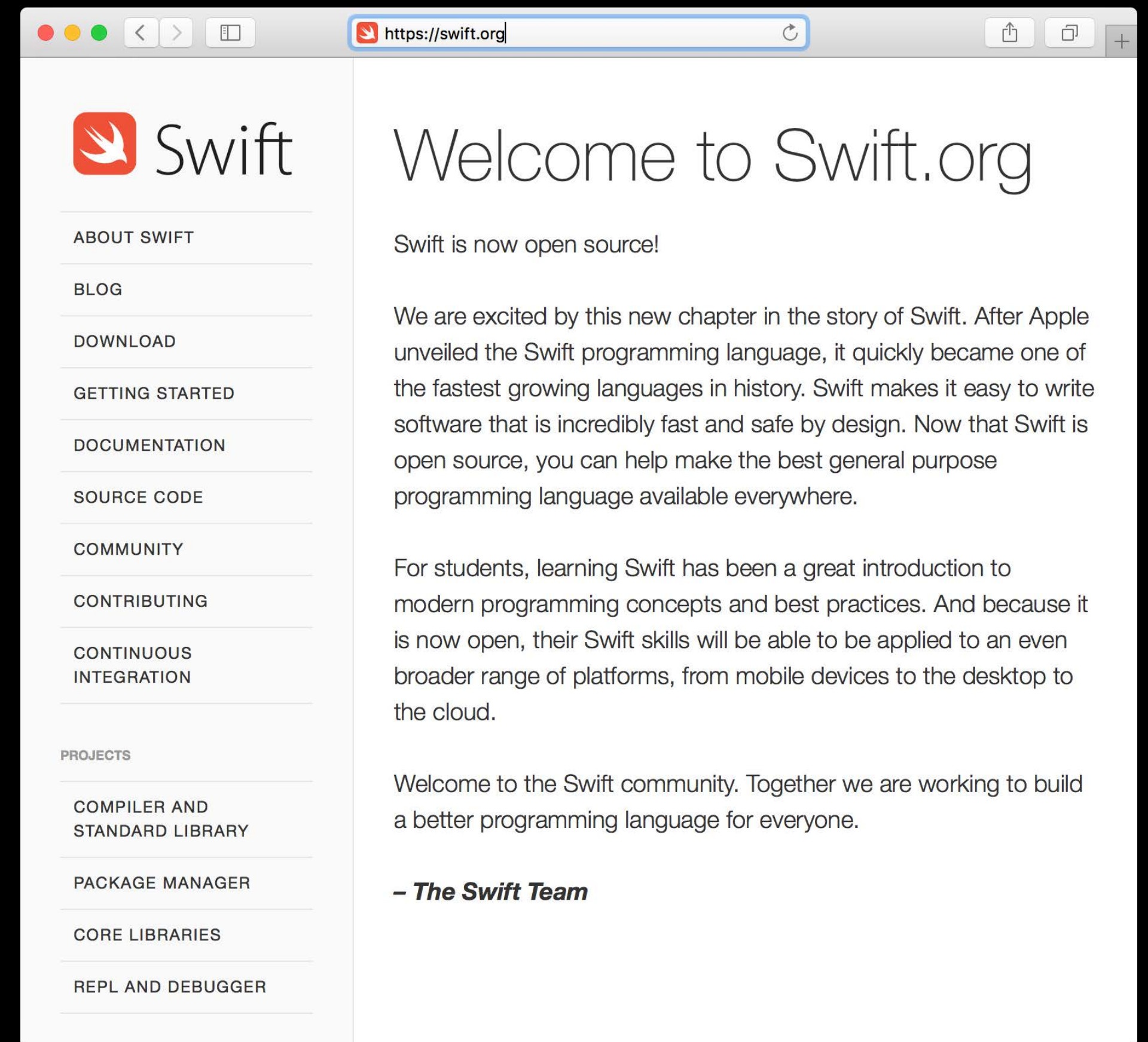
# What's In Included projects

Linux and Mac Platform support



# What's In Included projects

Linux and Mac Platform support  
Standard Library

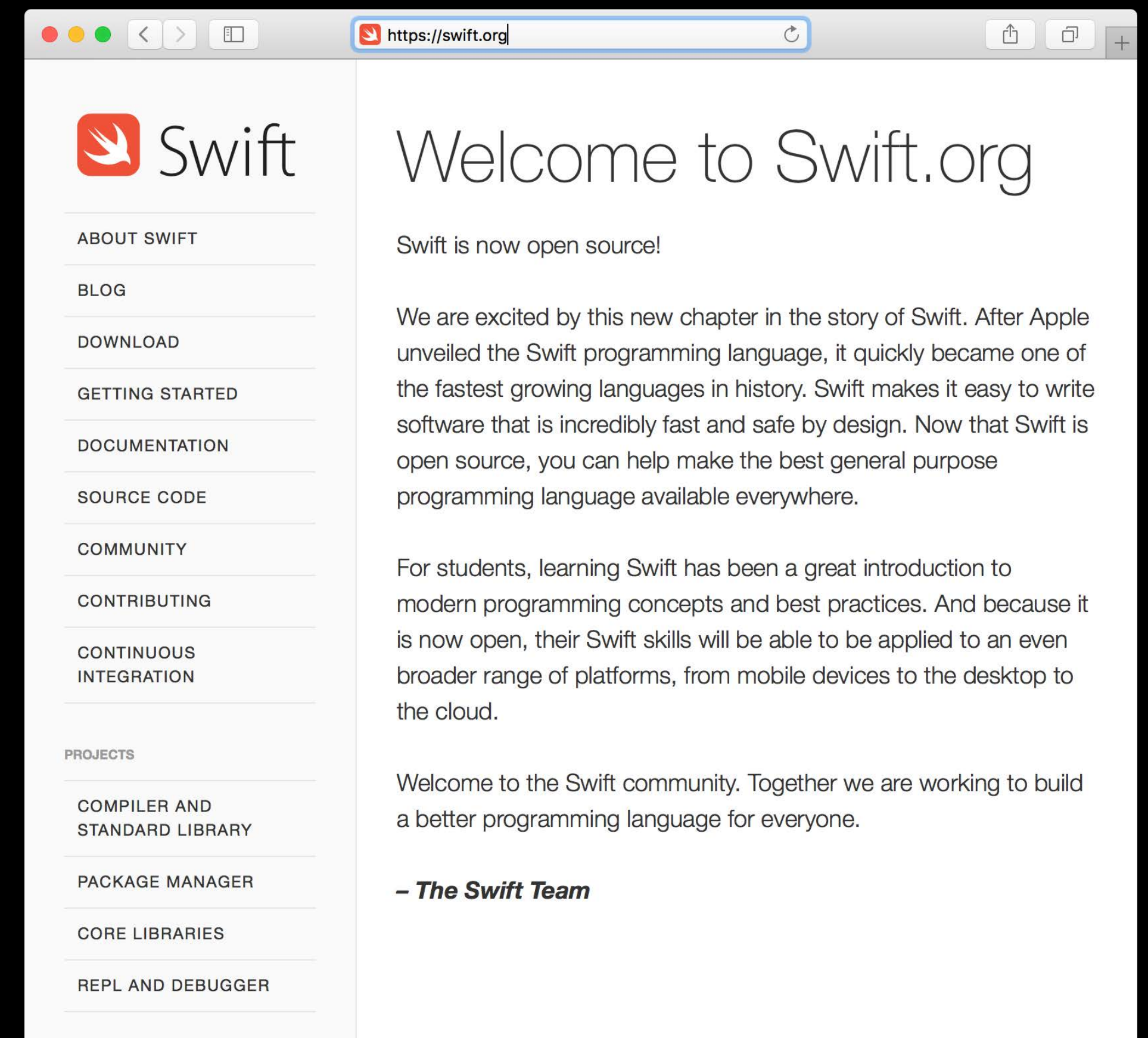


# What's In Included projects

Linux and Mac Platform support

Standard Library

Foundation, Dispatch, and XCTest



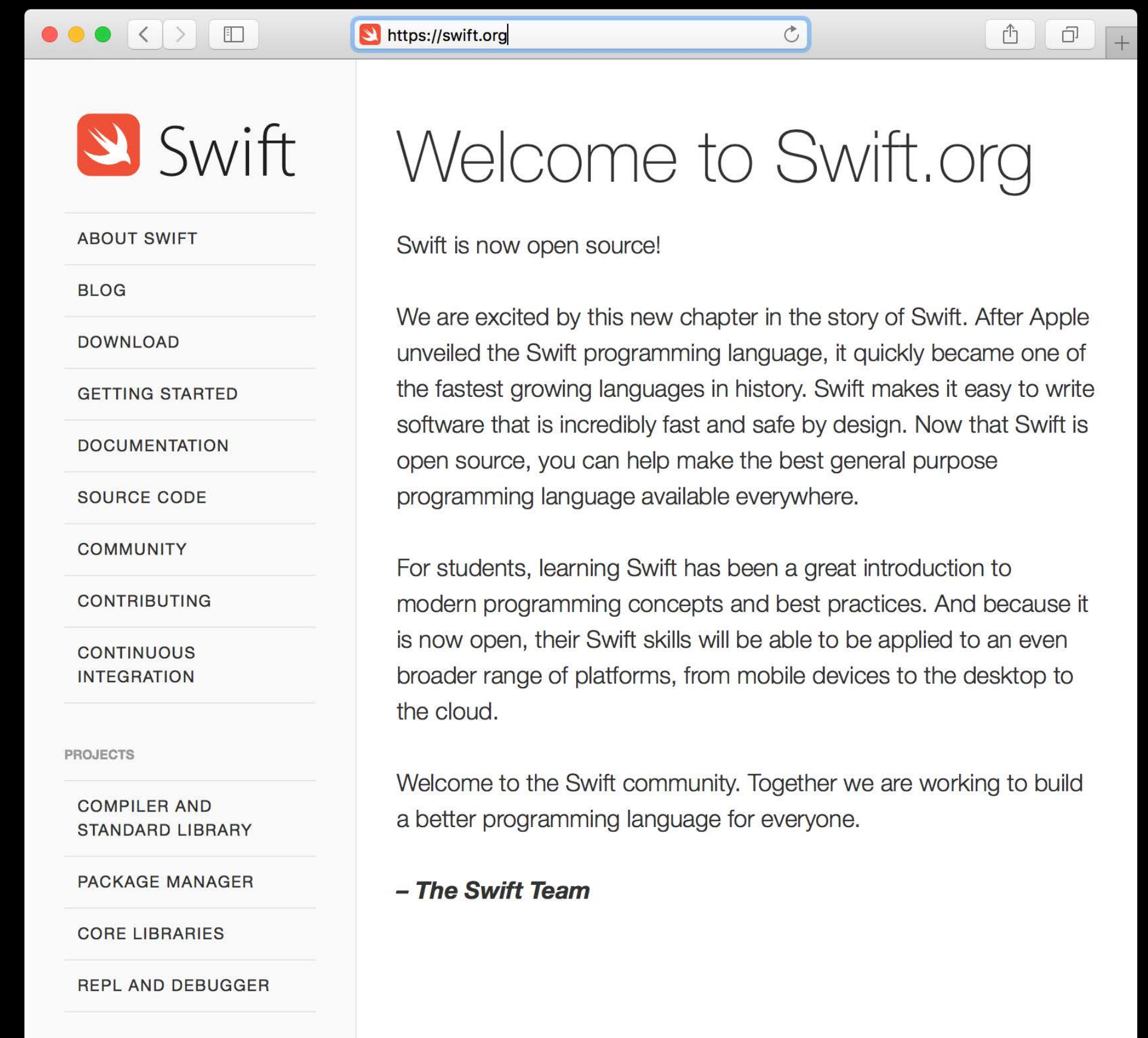
# What's In Included projects

Linux and Mac Platform support

Standard Library

Foundation, Dispatch, and XCTest

Compiler Command Line Tools



# Your Code Goes Here

Developer opportunities



# Your Code Goes Here

Developer opportunities

New platforms

# Your Code Goes Here

Developer opportunities

New platforms

User interface

# Your Code Goes Here

Developer opportunities

New platforms

User interface

Deployment

# Your Code Goes Here

Developer opportunities

New platforms

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Deployment

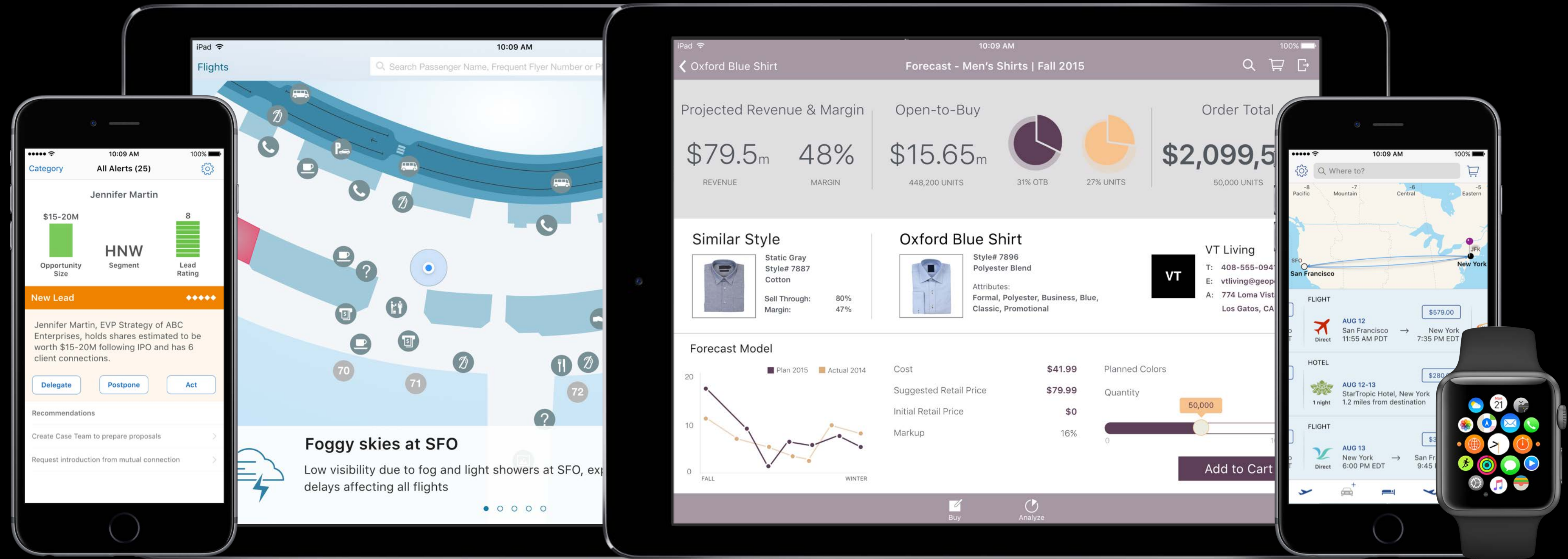
Your applications

# Real-world Server-side Swift

John Ponzio

IBM MobileFirst CTO

# Swift @ IBM



# IBM MobileFirst *for* iOS

# Swift @ IBM

Bringing Swift to the server

# Swift @ IBM

Bringing Swift to the server

Community enablement

- Swift Sandbox
- Swift Package Catalog



# Swift @ IBM

Bringing Swift to the server

Community enablement

- Swift Sandbox
- Swift Package Catalog

Consistent developer experience

- Kitura Web Framework
- Core swift.org contributions

# Swift @ IBM

## Bringing Swift to the server

### Community enablement

- Swift Sandbox
- Swift Package Catalog

### Consistent developer experience

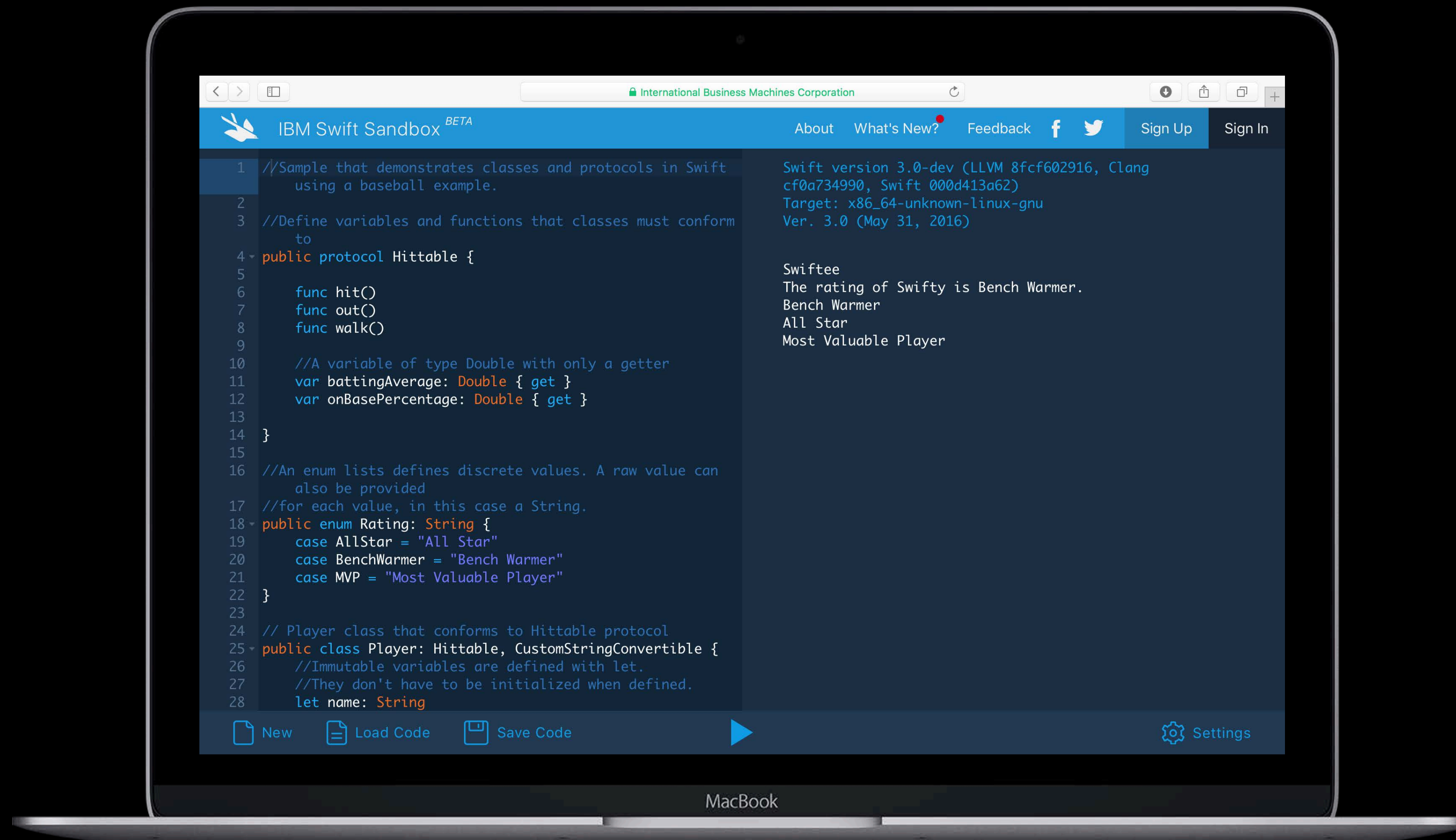
- Kitura Web Framework
- Core swift.org contributions

### Cloud enablement

- IBM Cloud Deployment
- IBM Cloud Tools for Swift

# Community Enablement

## IBM Swift Sandbox



<http://swiftlang.ng.bluemix.net>

# Community Enablement

IBM Swift Sandbox



<http://swiftlang.ng.bluemix.net>

# Community Enablement

IBM Swift Sandbox

1.5M+

Code runs since December 4, 2015

MacBook

<http://swiftlang.ng.bluemix.net>

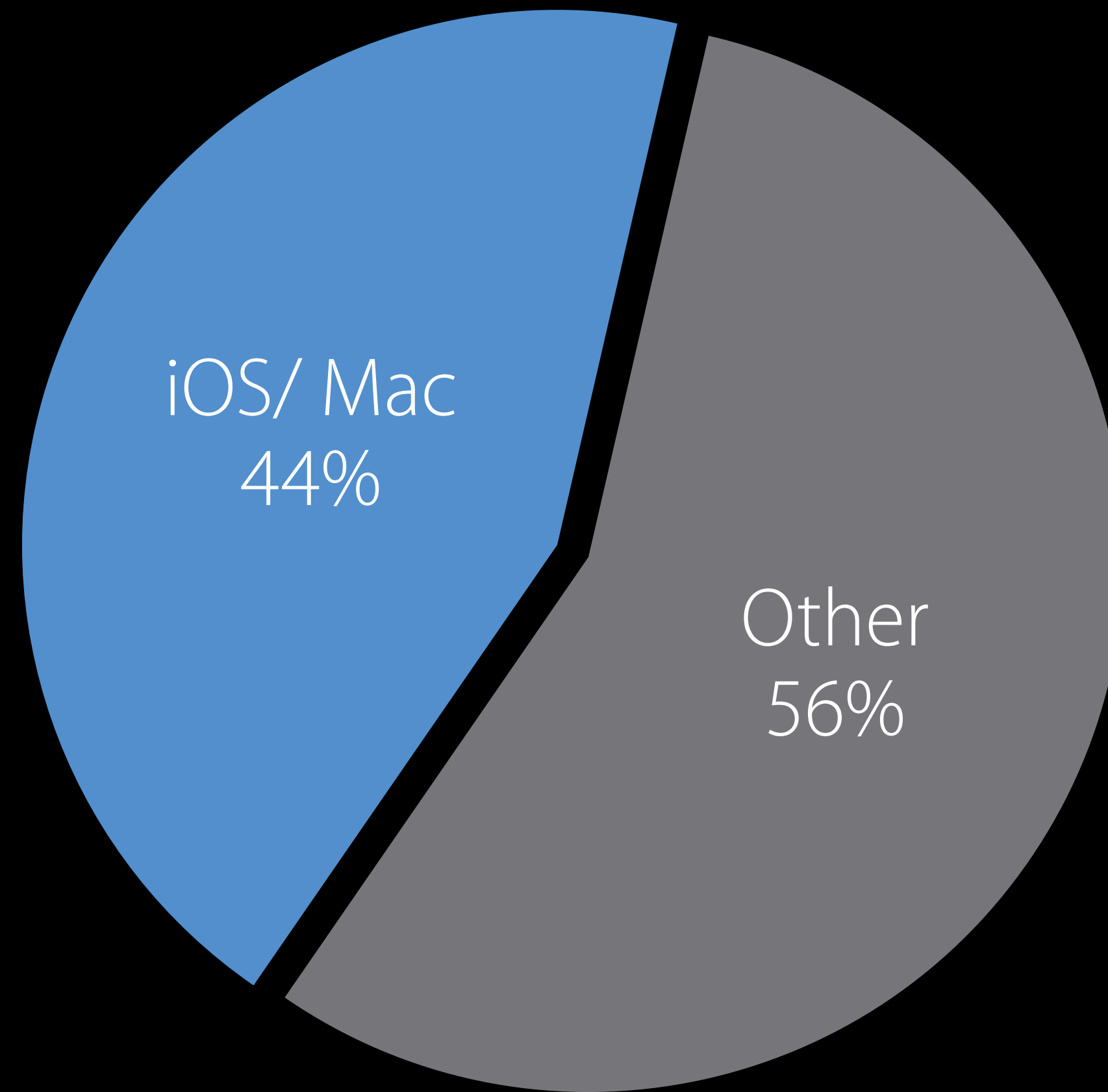
# Community Enablement

IBM Swift Sandbox

<http://swiftlang.ng.bluemix.net>

# Community Enablement

IBM Swift Sandbox

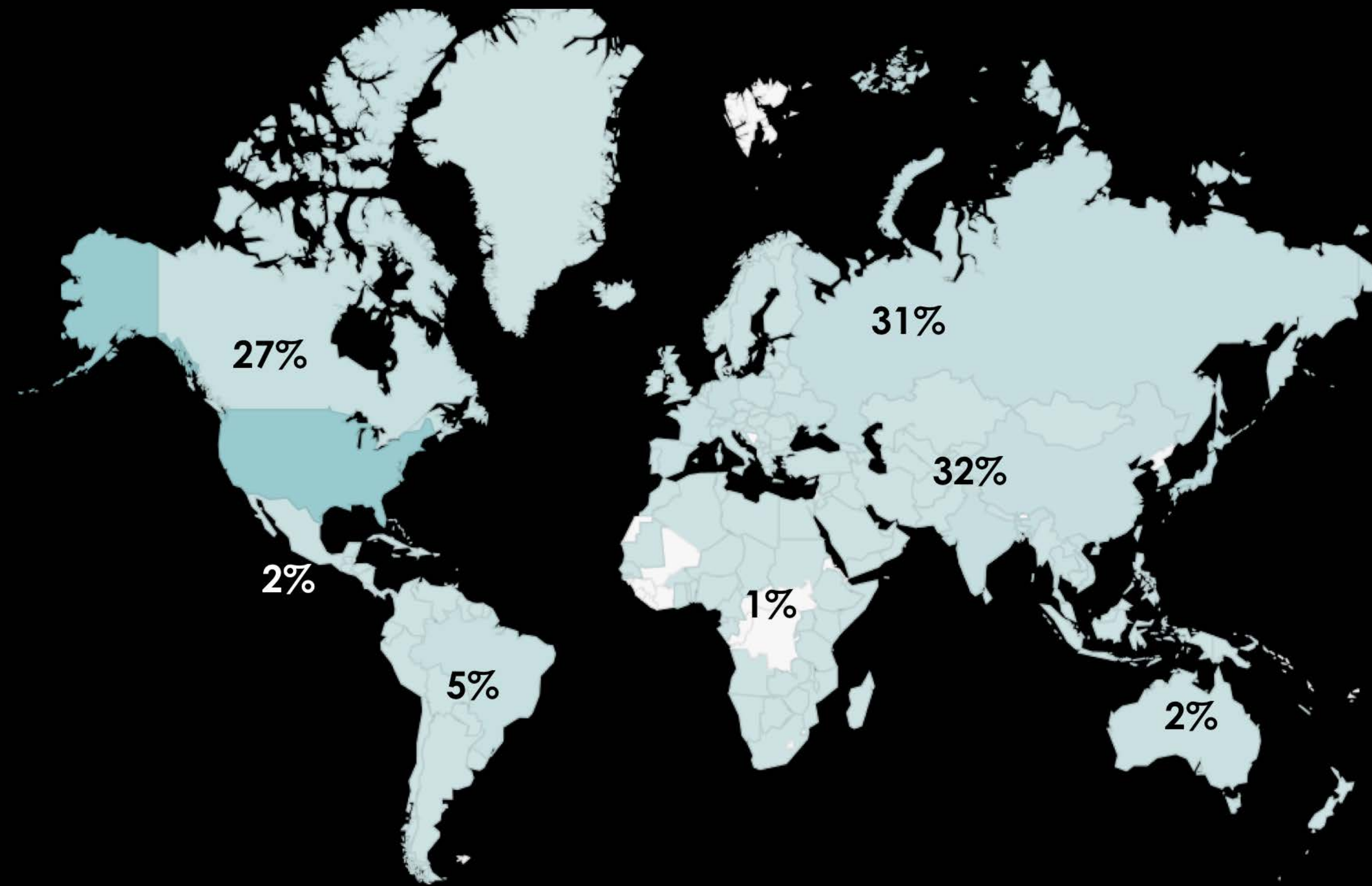


Cross-platform Interest

<http://swiftlang.ng.bluemix.net>

# Community Enablement

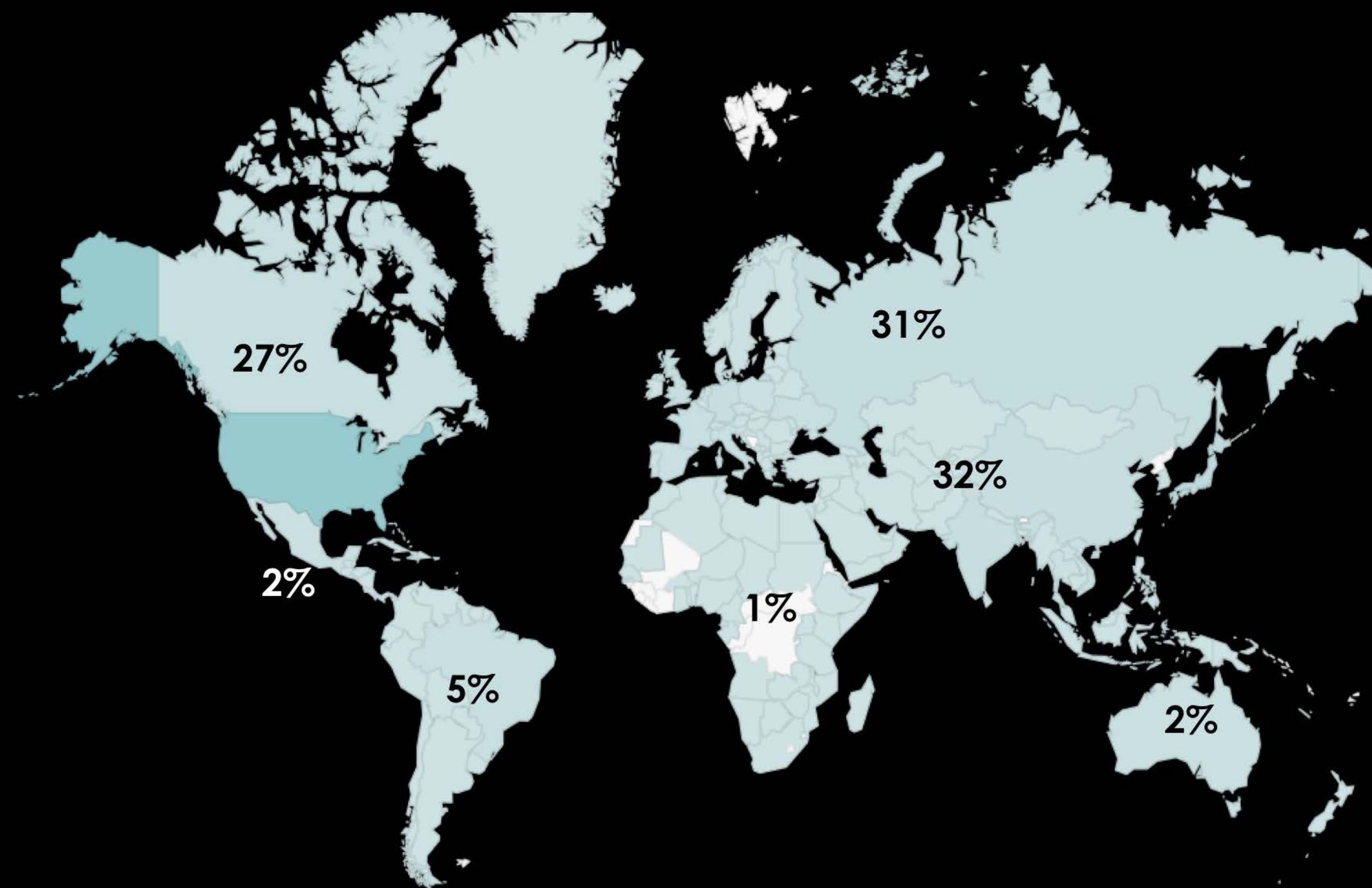
IBM Swift Sandbox





# Community Enablement

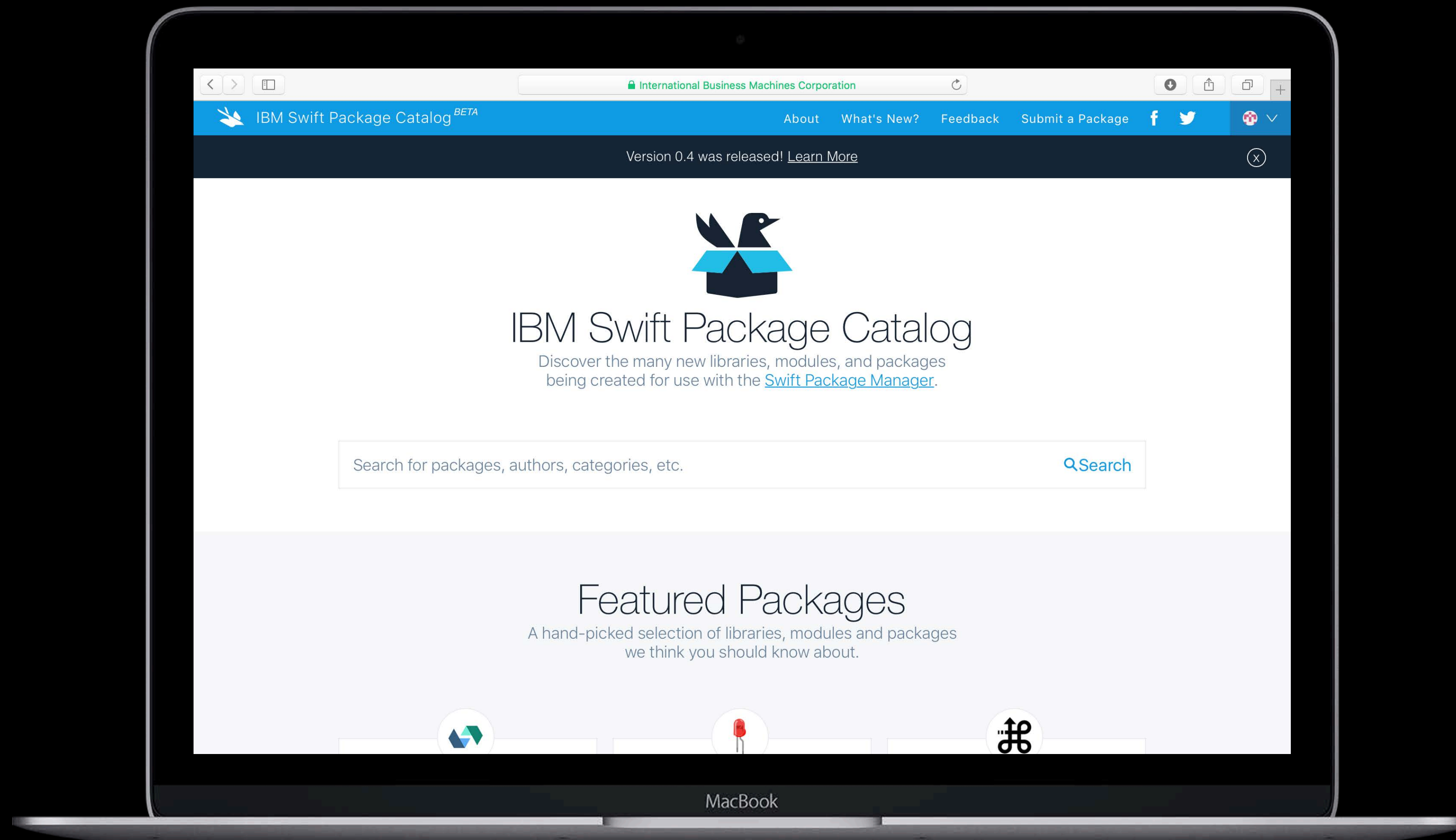
IBM Swift Sandbox



Worldwide Interest

# Community Enablement

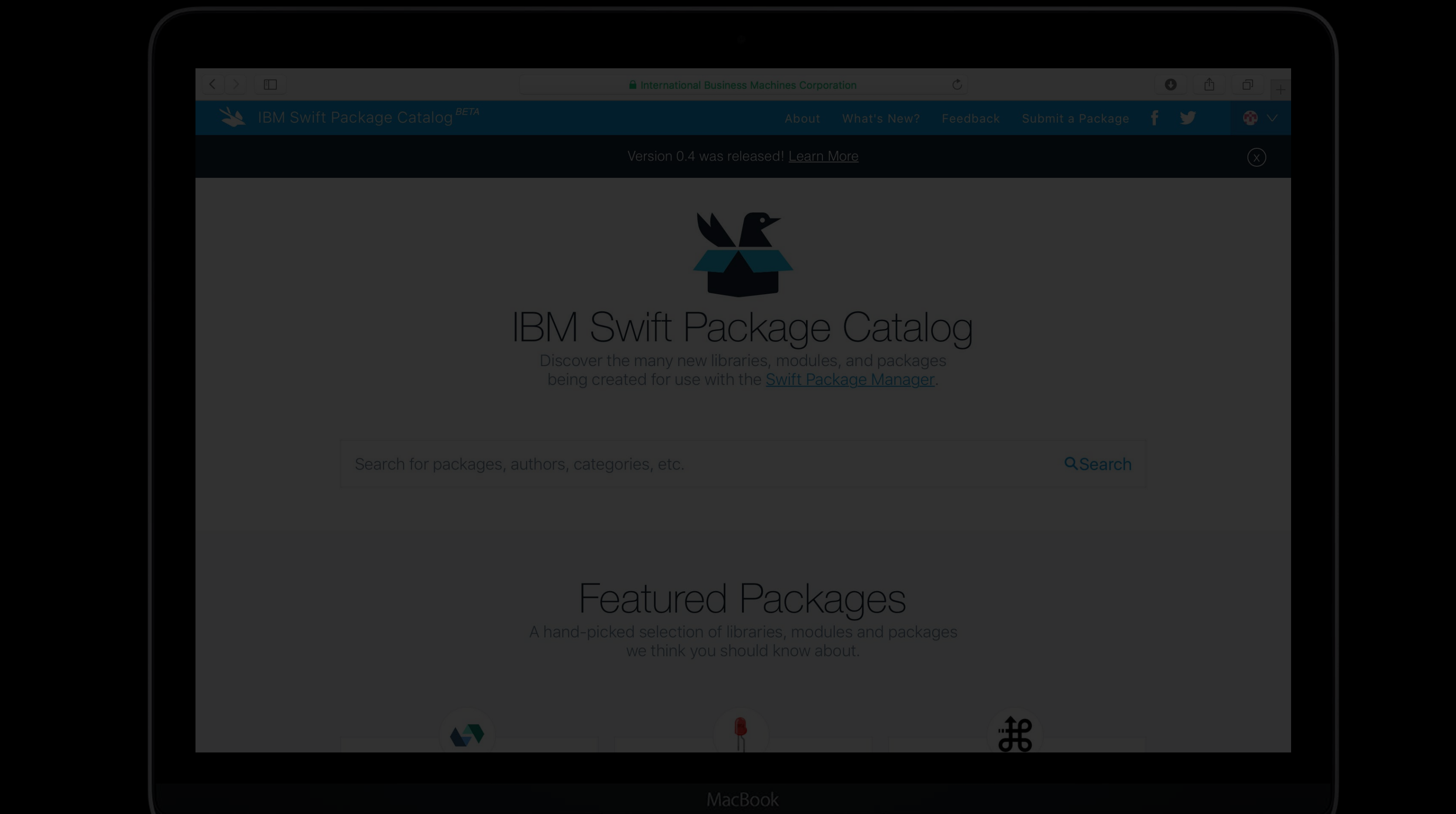
## IBM Swift Package Catalog



<http://swiftpkgs.ng.bluemix.net>

# Community Enablement

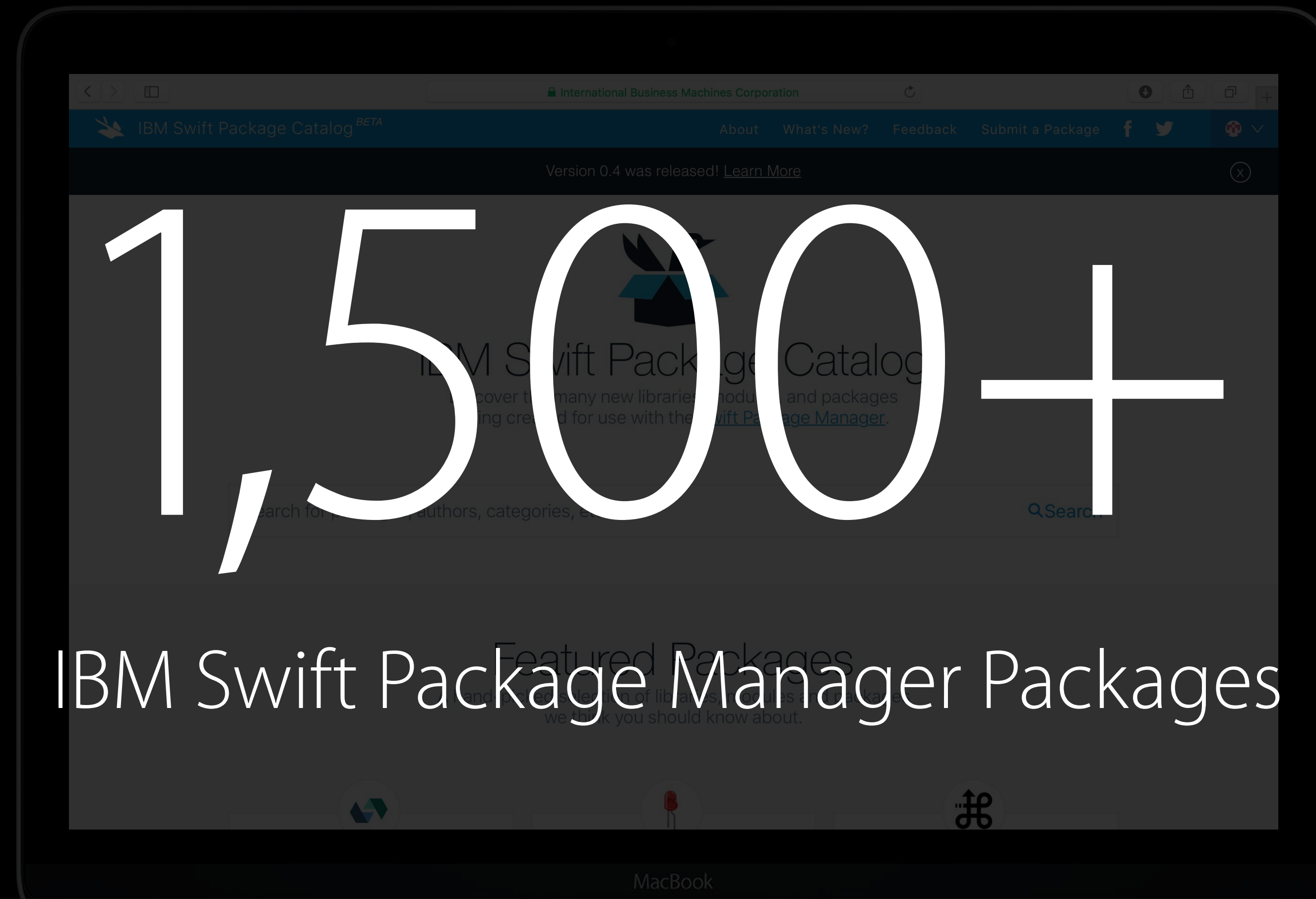
## IBM Swift Package Catalog



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# Community Enablement

## IBM Swift Package Catalog

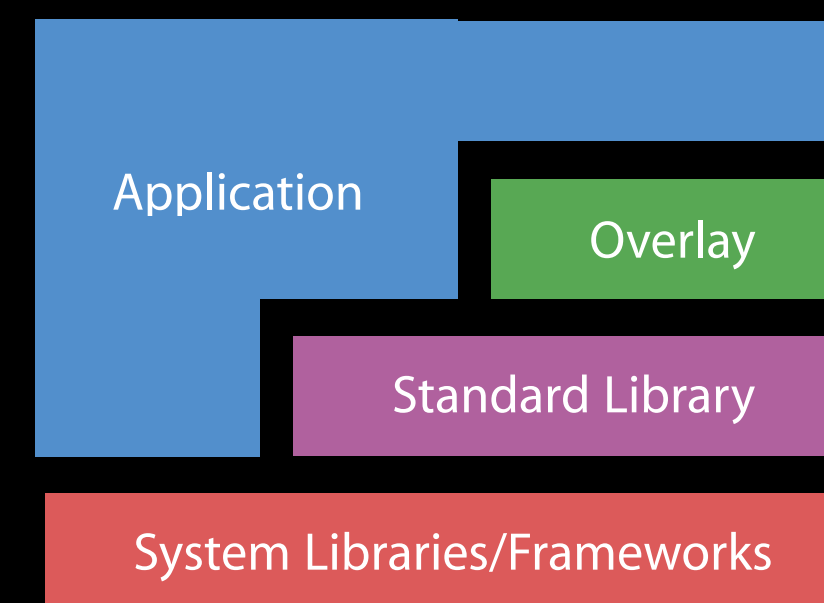


1,500+ IBM Swift Package Manager Packages

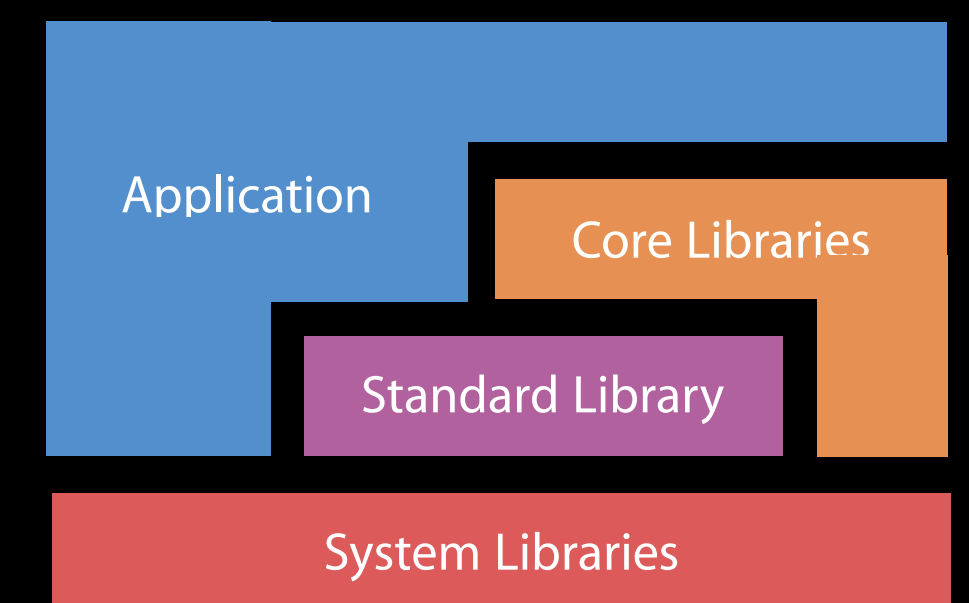
<http://swiftpkgs.ng.bluemix.net>

# Consistent Developer Experience

Kitura web framework



Darwin

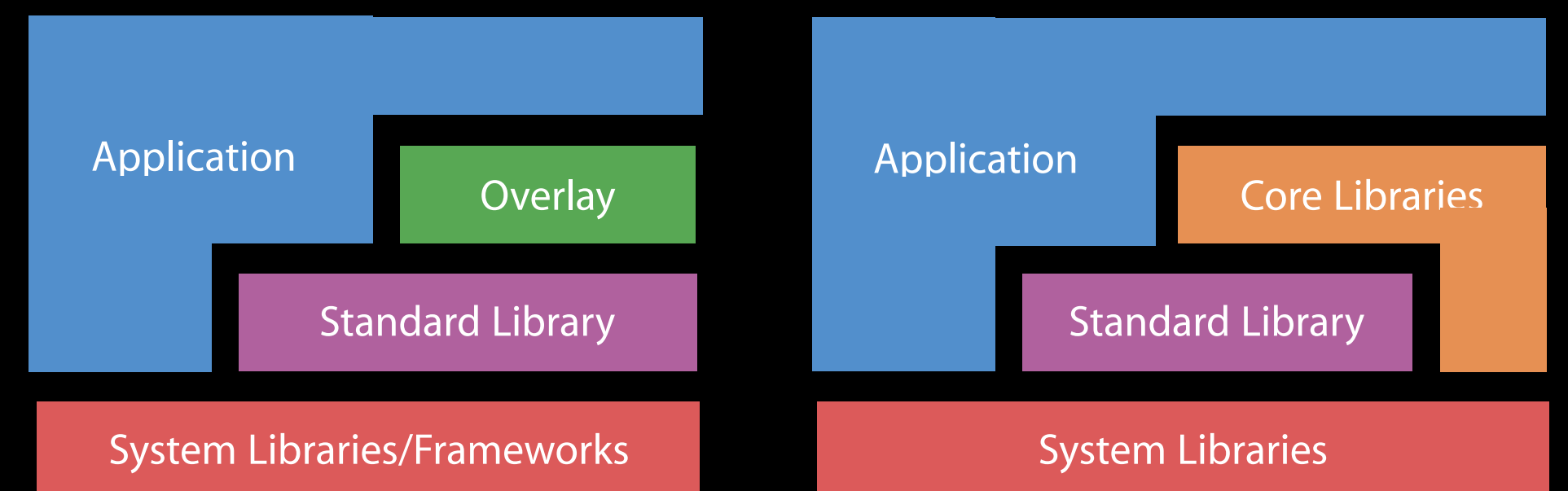


Linux

# Consistent Developer Experience

Kitura web framework

Open sourced in February 2016



Darwin

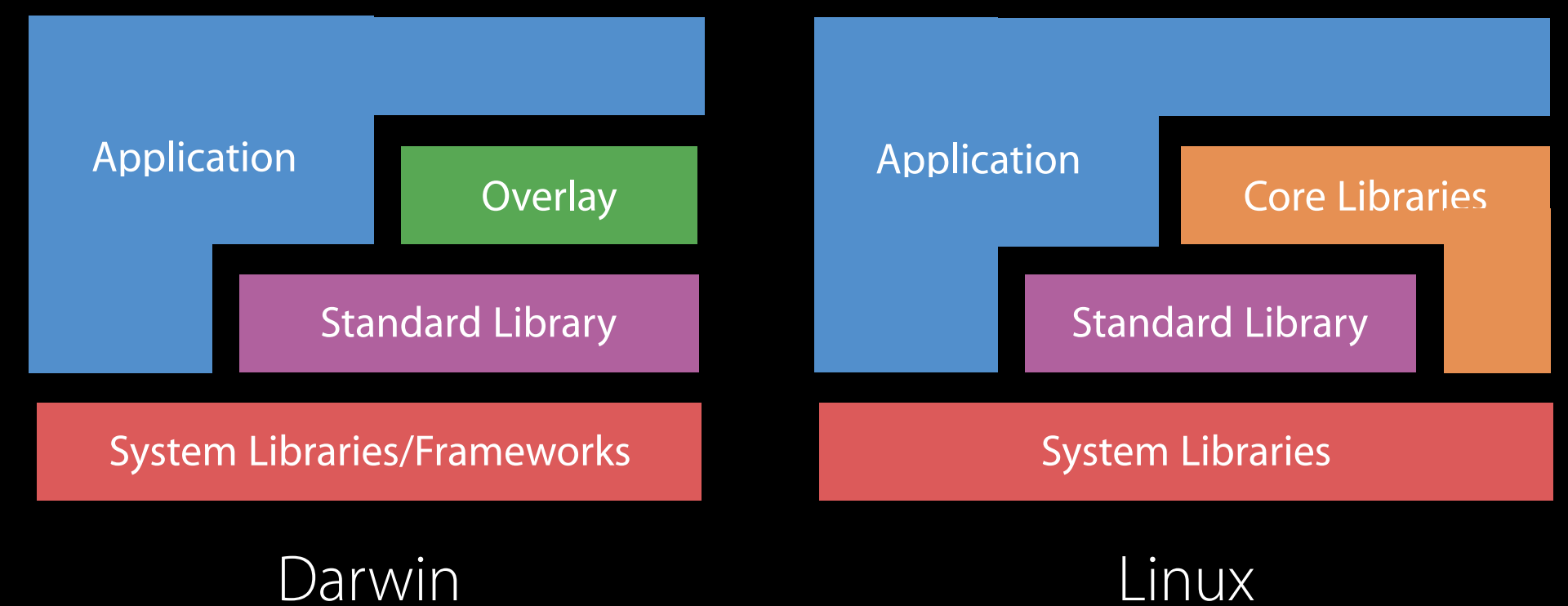
Linux

# Consistent Developer Experience

Kitura web framework

Open sourced in February 2016

Modular package-based web framework



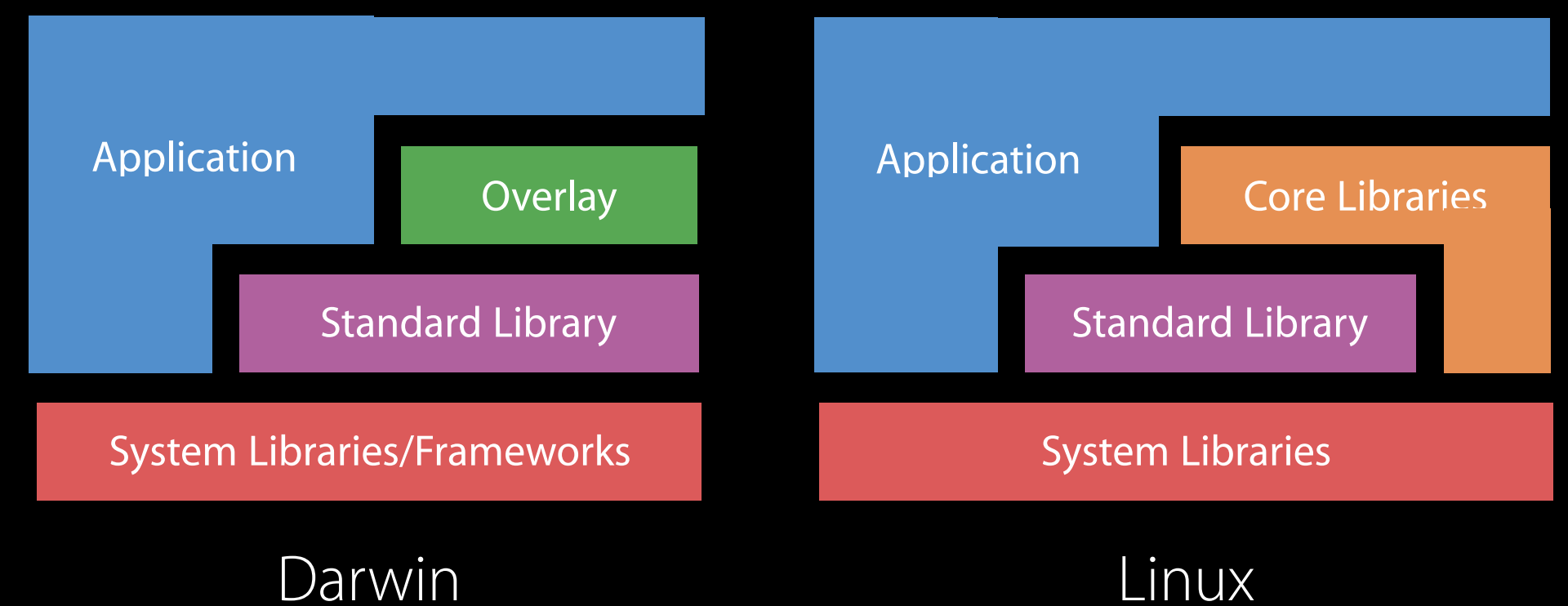
# Consistent Developer Experience

Kitura web framework

Open sourced in February 2016

Modular package-based web framework

Leverages libdispatch and Foundation





# Consistent Developer Experience

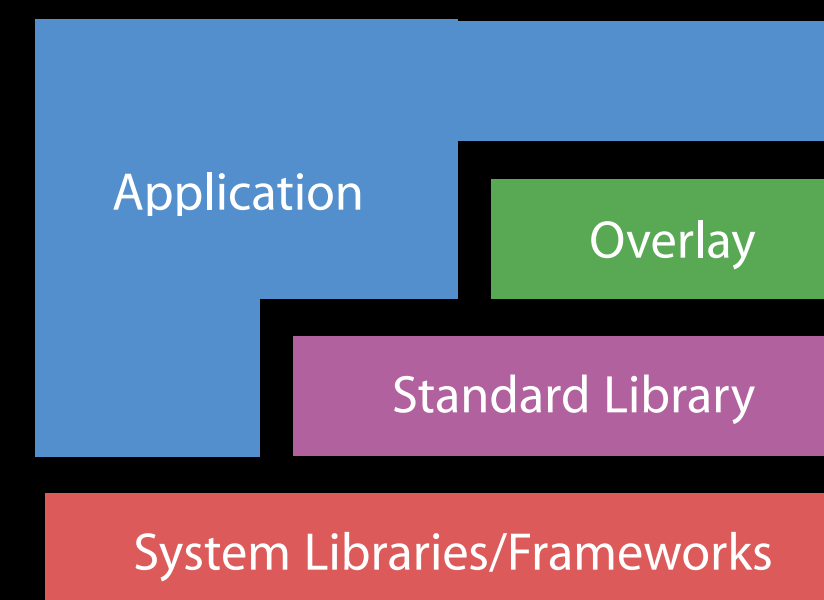
## Kitura web framework

Open sourced in February 2016

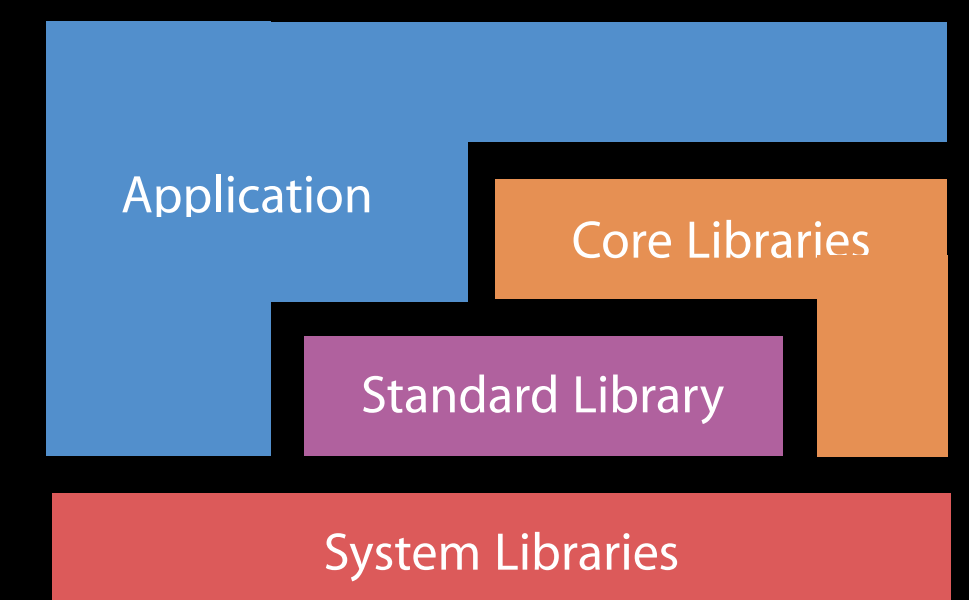
Modular package-based web framework

Leverages libdispatch and Foundation

Driving IBM's contributions into swift.org



Darwin



Linux

# Consistent Developer Experience

## Kitura web framework

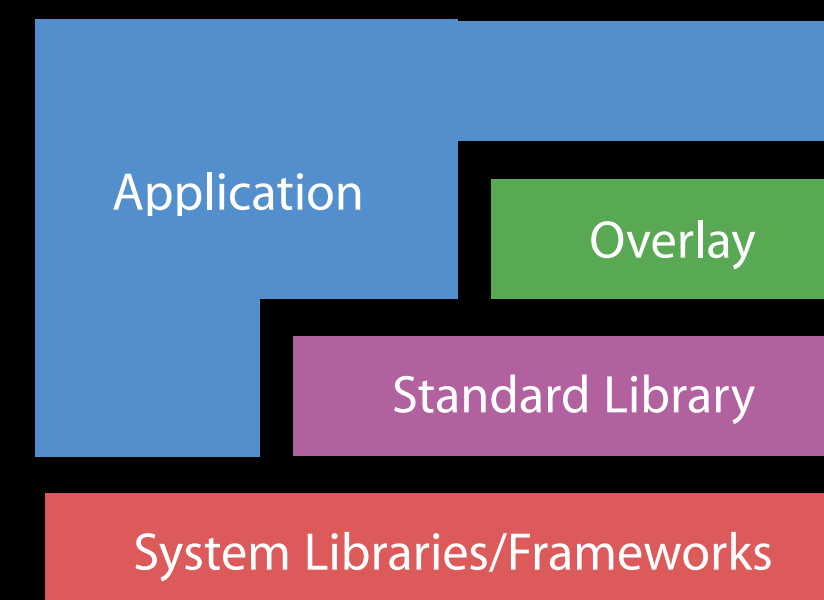
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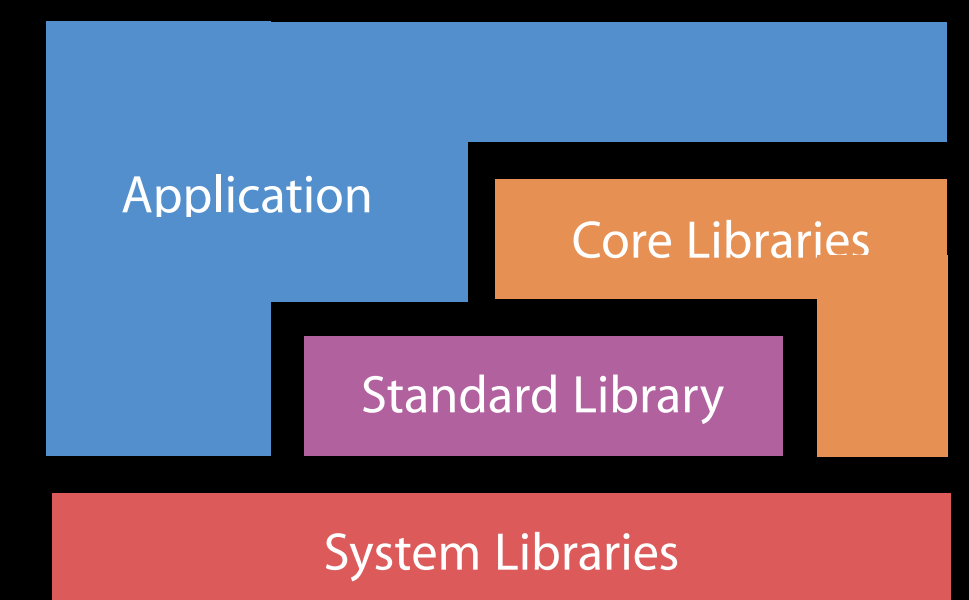
Leverages libdispatch and Foundation

Driving IBM's contributions into swift.org

Used at IBM for Swift server-side applications



Darwin



Linux

# Consistent Developer Experience

## Kitura web framework

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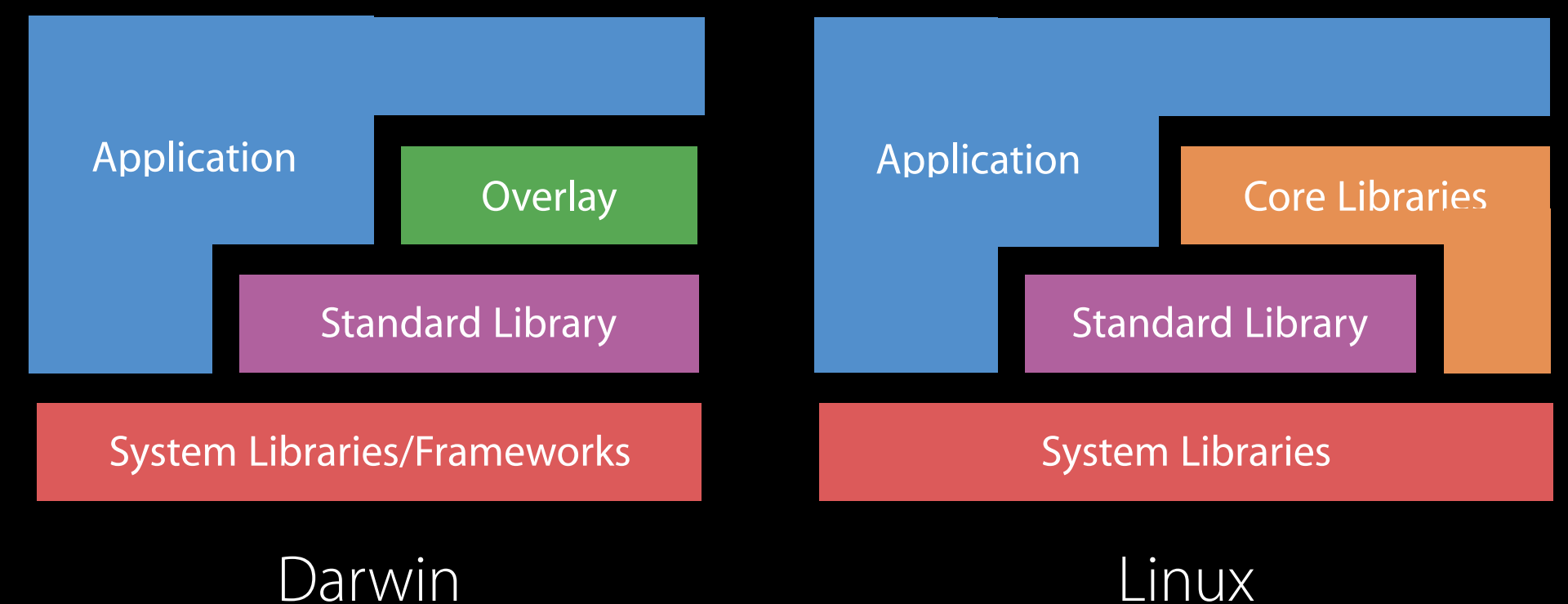
Modular package-based web framework

Leverages libdispatch and Foundation

Driving IBM's contributions into swift.org

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Available at [github.com/ibm-swift/kitura](https://github.com/ibm-swift/kitura)



# Cloud Enablement

IBM Cloud Deployment

# Cloud Enablement

## IBM Cloud Deployment



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# Cloud Enablement

## IBM Cloud Tools for Swift



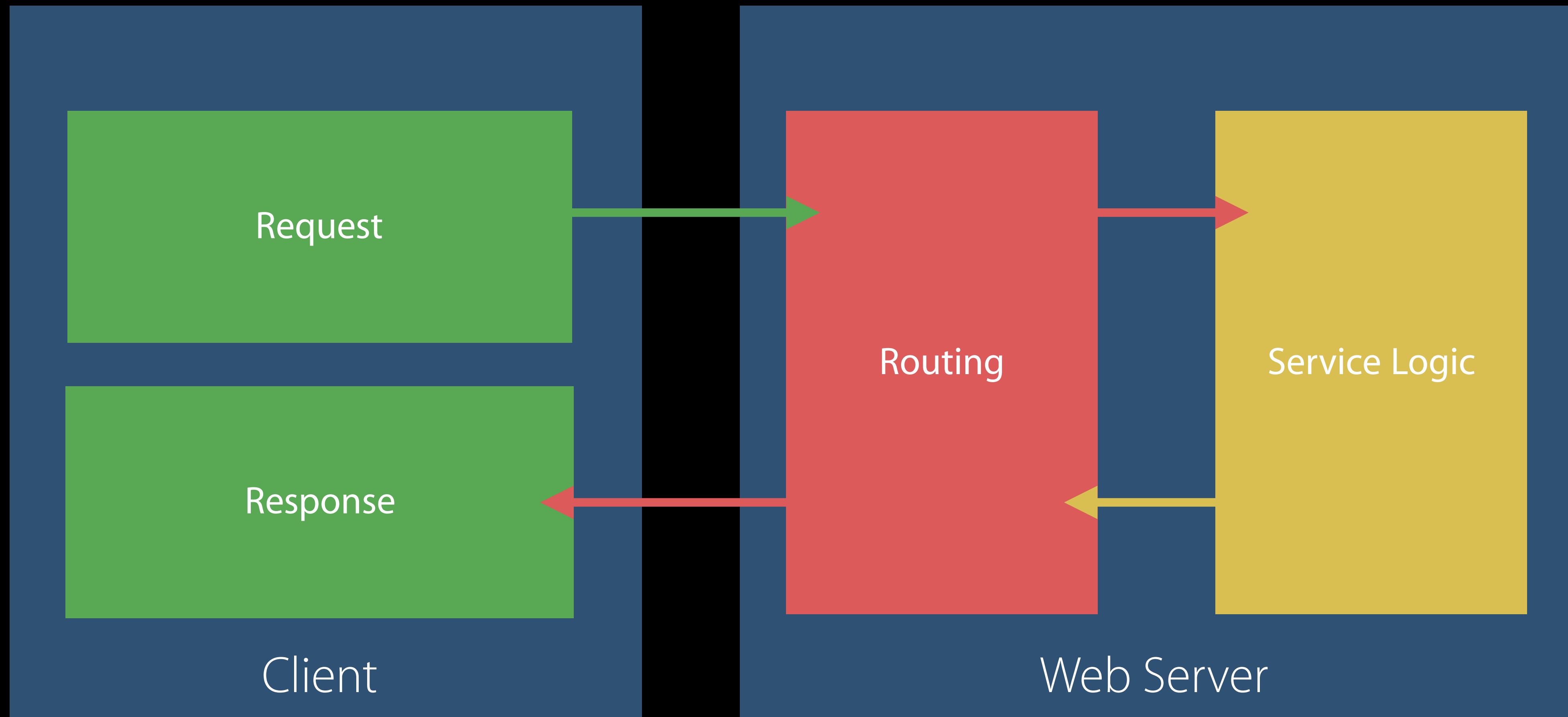
<http://cloudtools.bluemix.net>



# Let's Jump In!

Patrick Bohrer

Swift Technical Lead, IBM



Safari

Linux / Docker

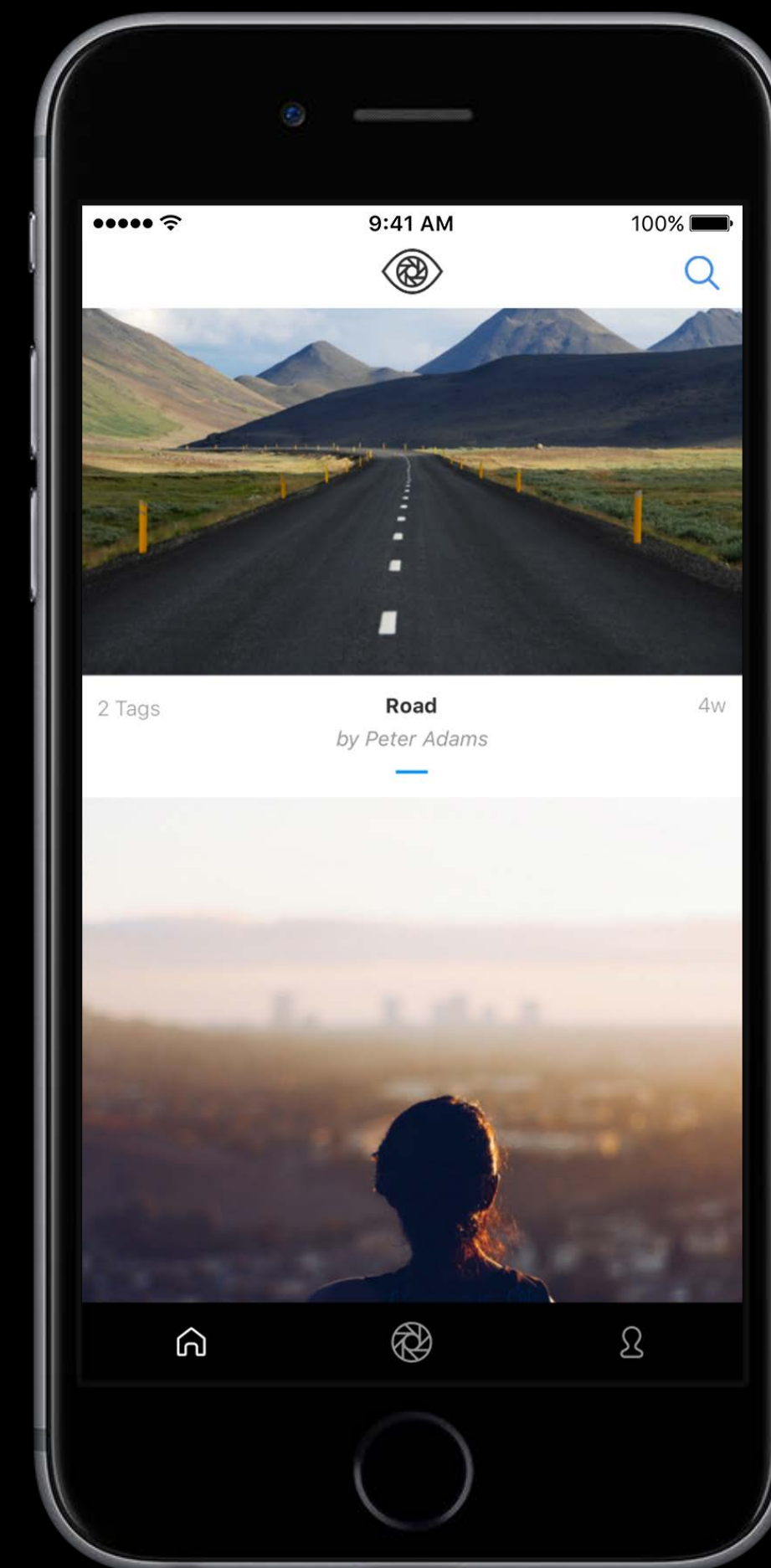


# *Demo*

Simple, Swift Web Server running on Linux

# End-to-end Swift

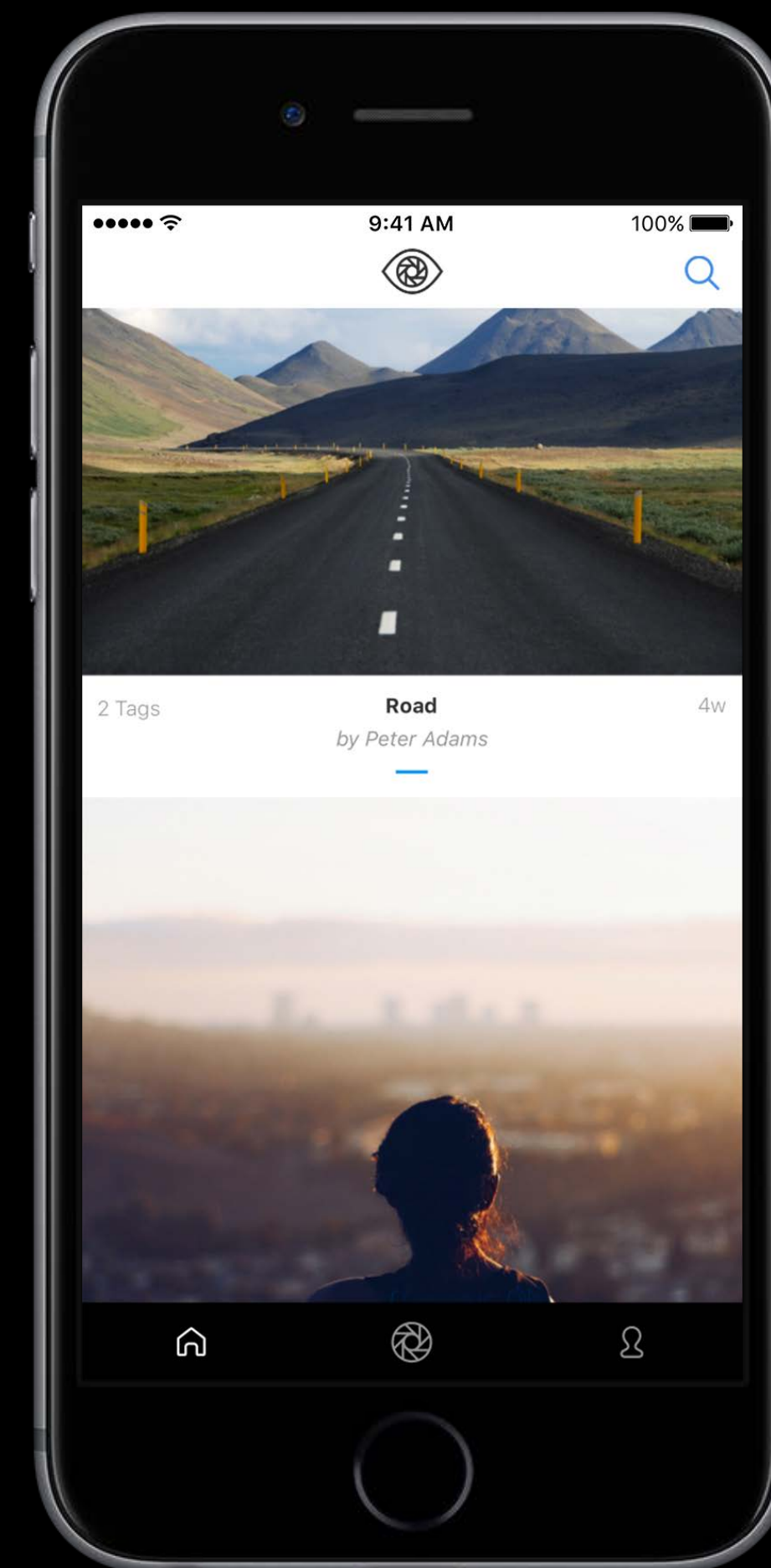
BluePic



# End-to-end Swift

BluePic

Sample photo sharing app

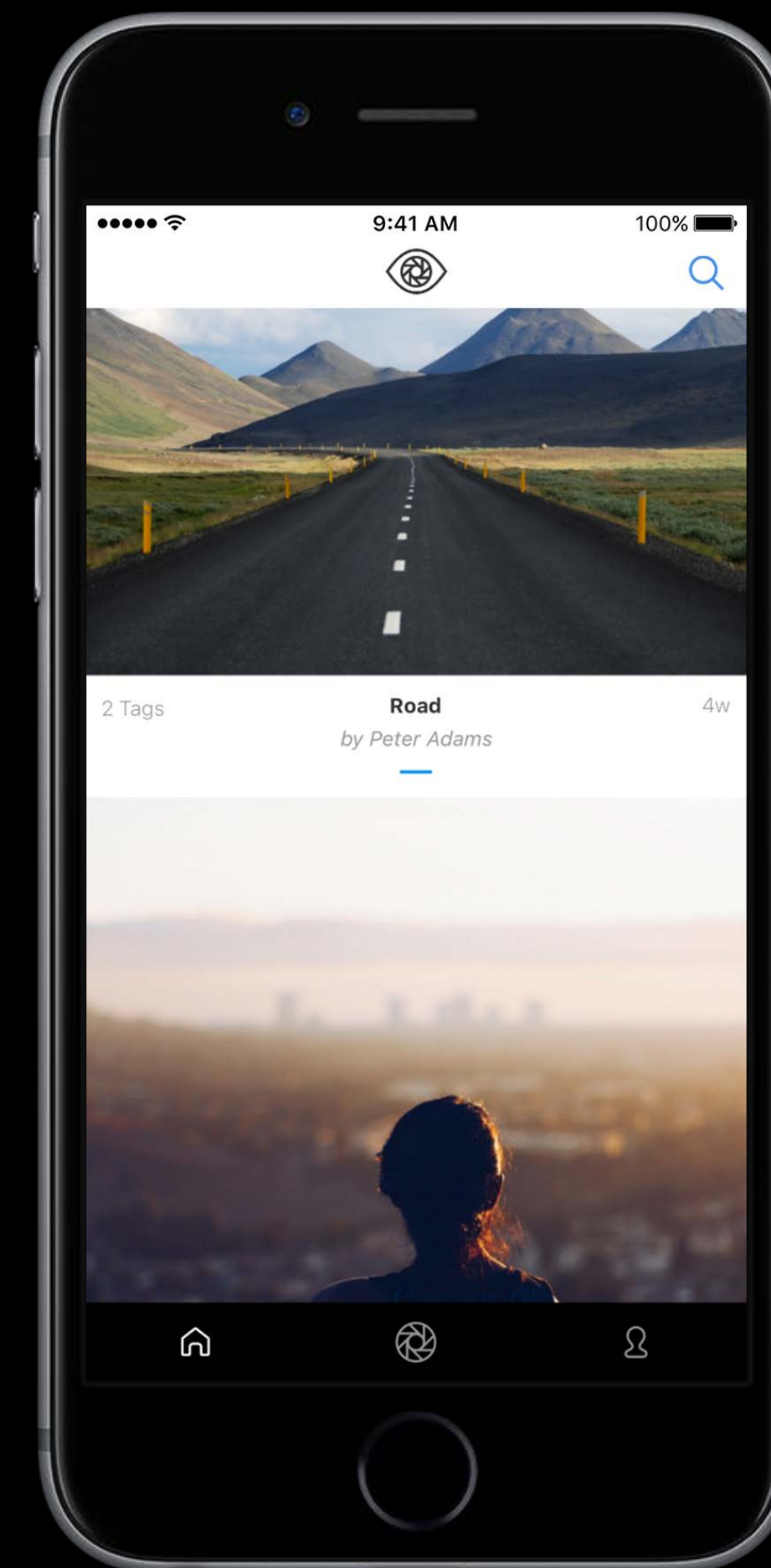


# End-to-end Swift

BluePic

Sample photo sharing app

Rich client interface written in Swift



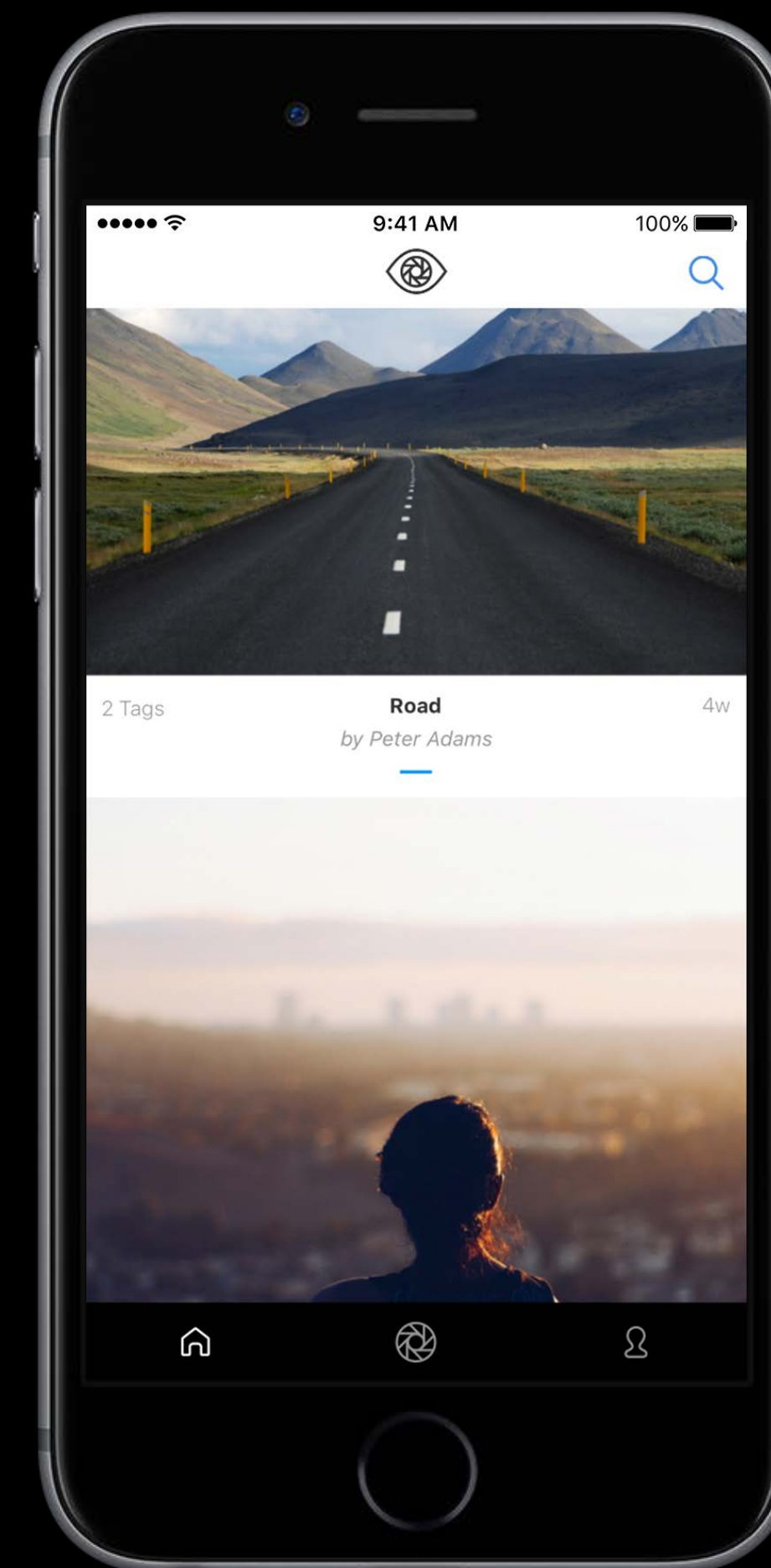
# End-to-end Swift

## BluePic

Sample photo sharing app

Rich client interface written in Swift

Swift Server built with Kitura, IBM Cloud, Watson,



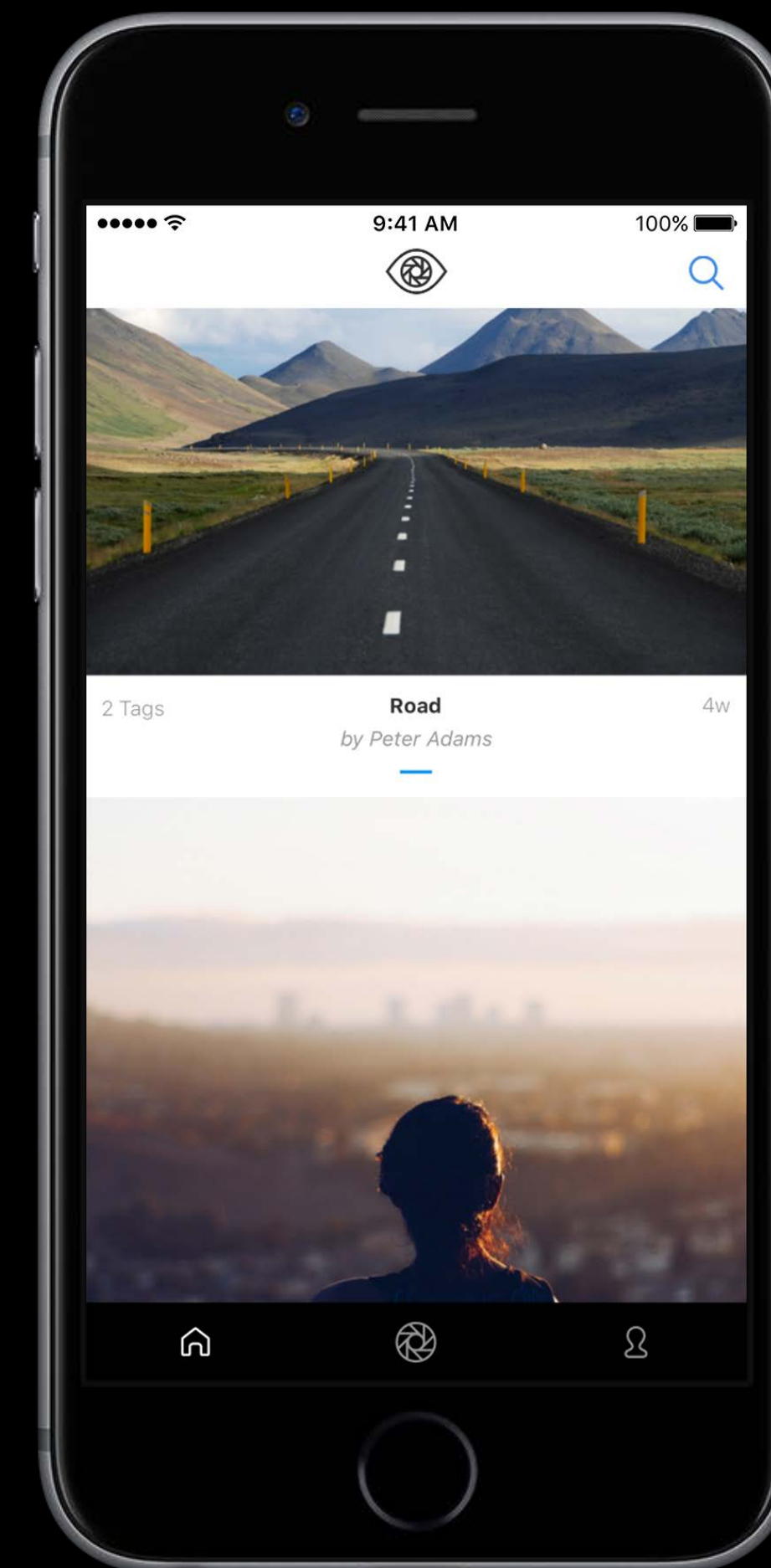
# End-to-end Swift

## BluePic

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and OpenWhisk



# End-to-end Swift

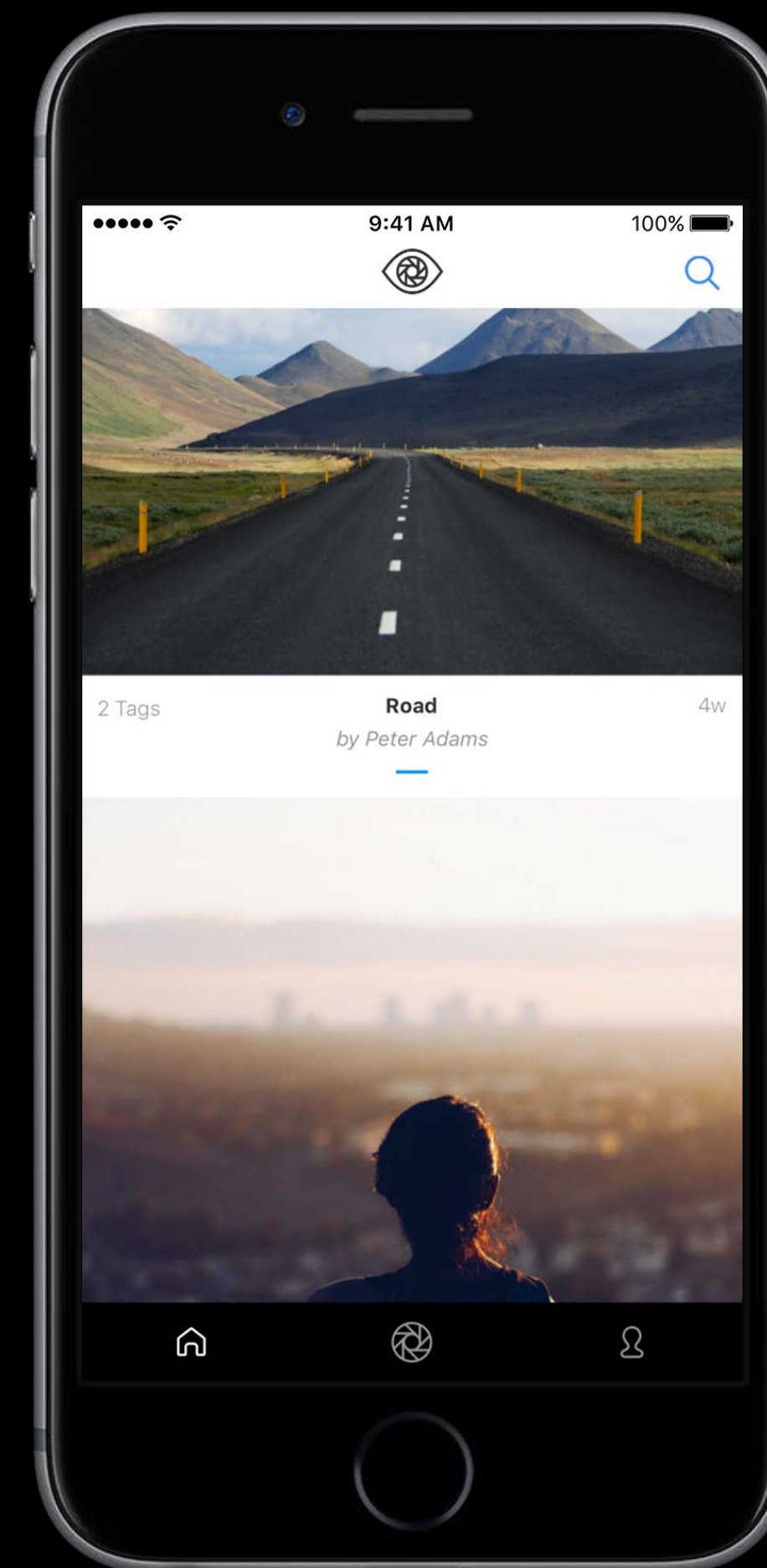
## BluePic

Sample photo sharing app

Rich client interface written in Swift

Swift Server built with Kitura, IBM Cloud, Watson,  
and OpenWhisk

Available at [github.com/IBM-Swift/BluePic](https://github.com/IBM-Swift/BluePic)



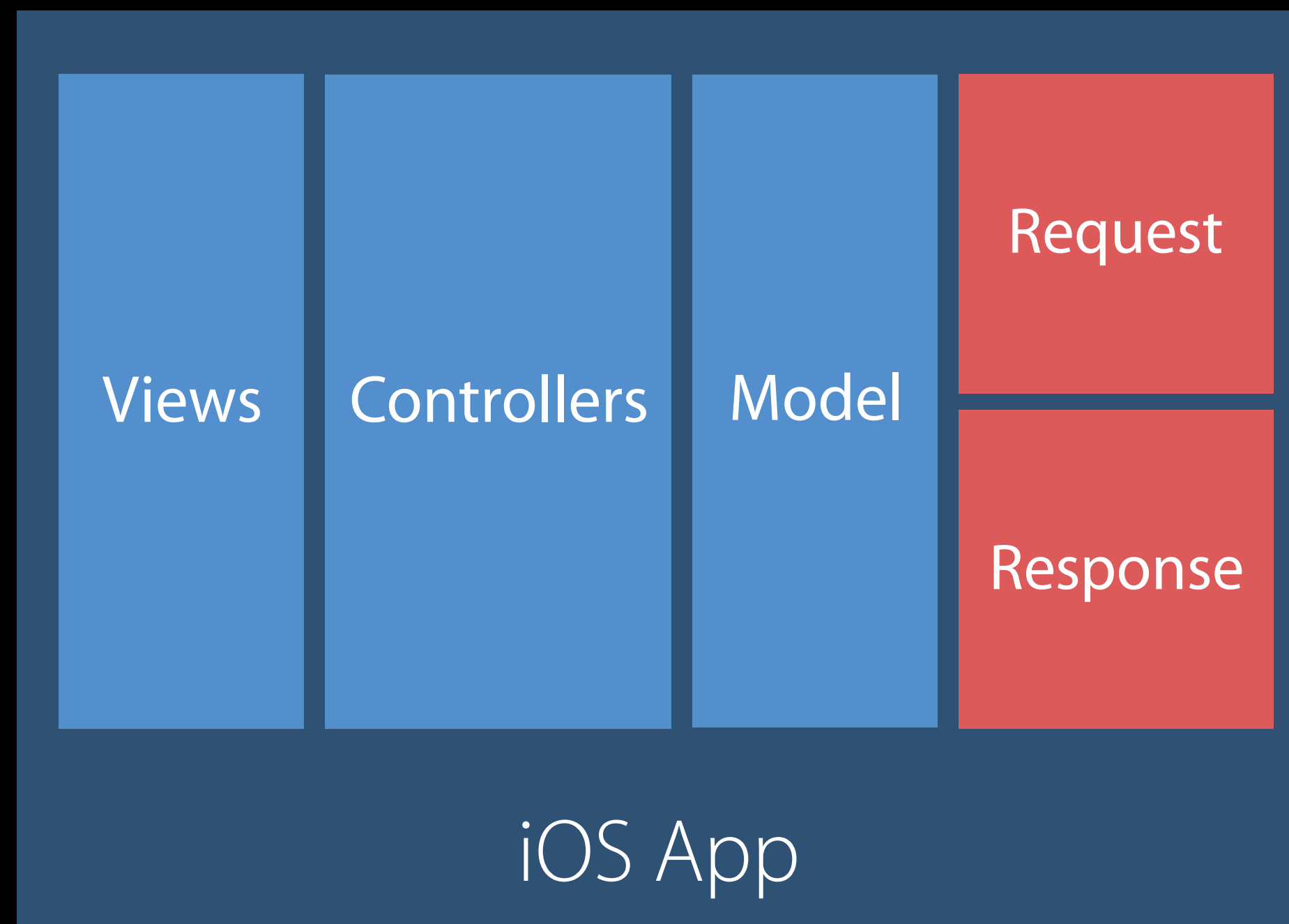
# End-to-end Swift

BluePic design pattern



# End-to-end Swift

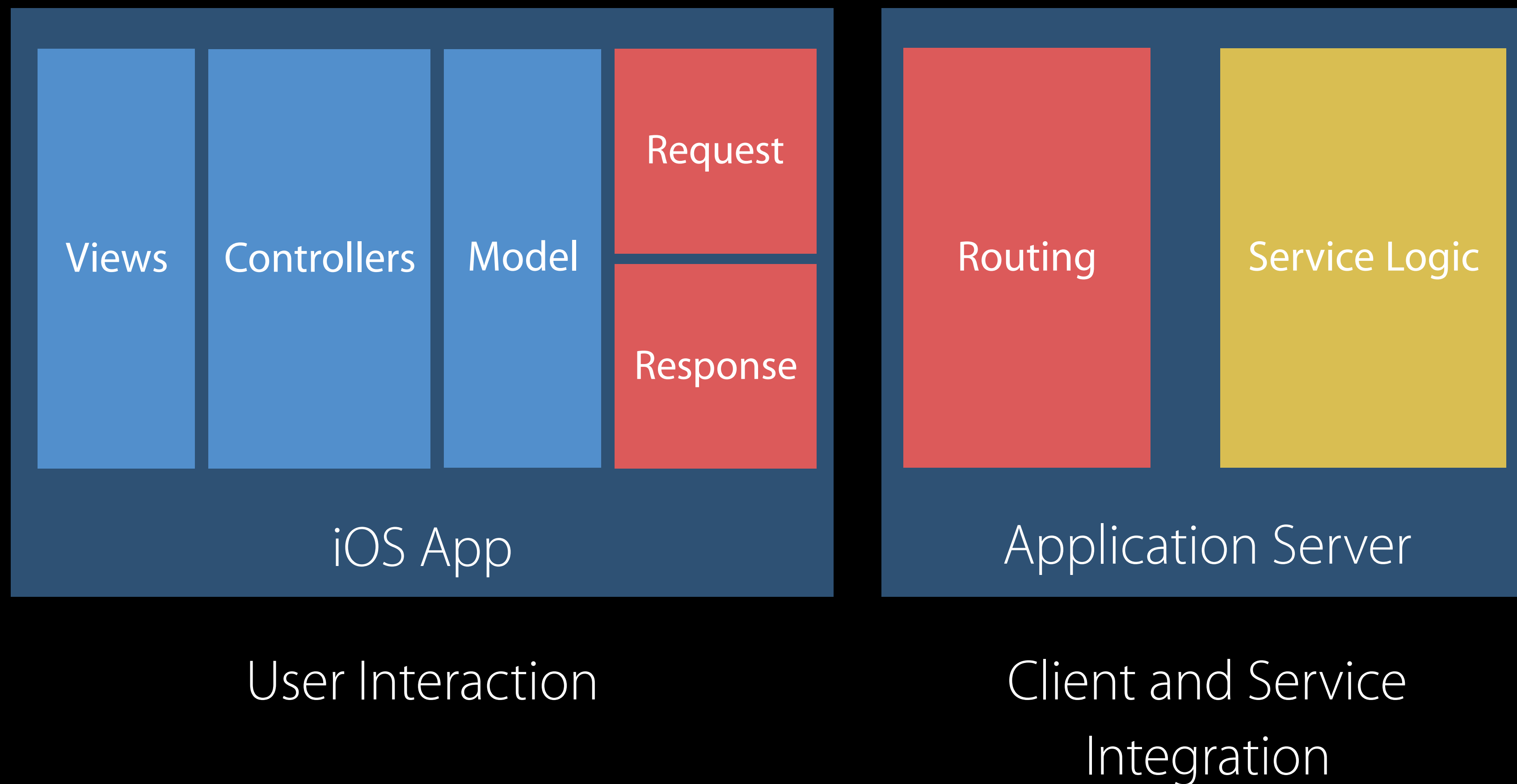
BluePic design pattern



User Interaction

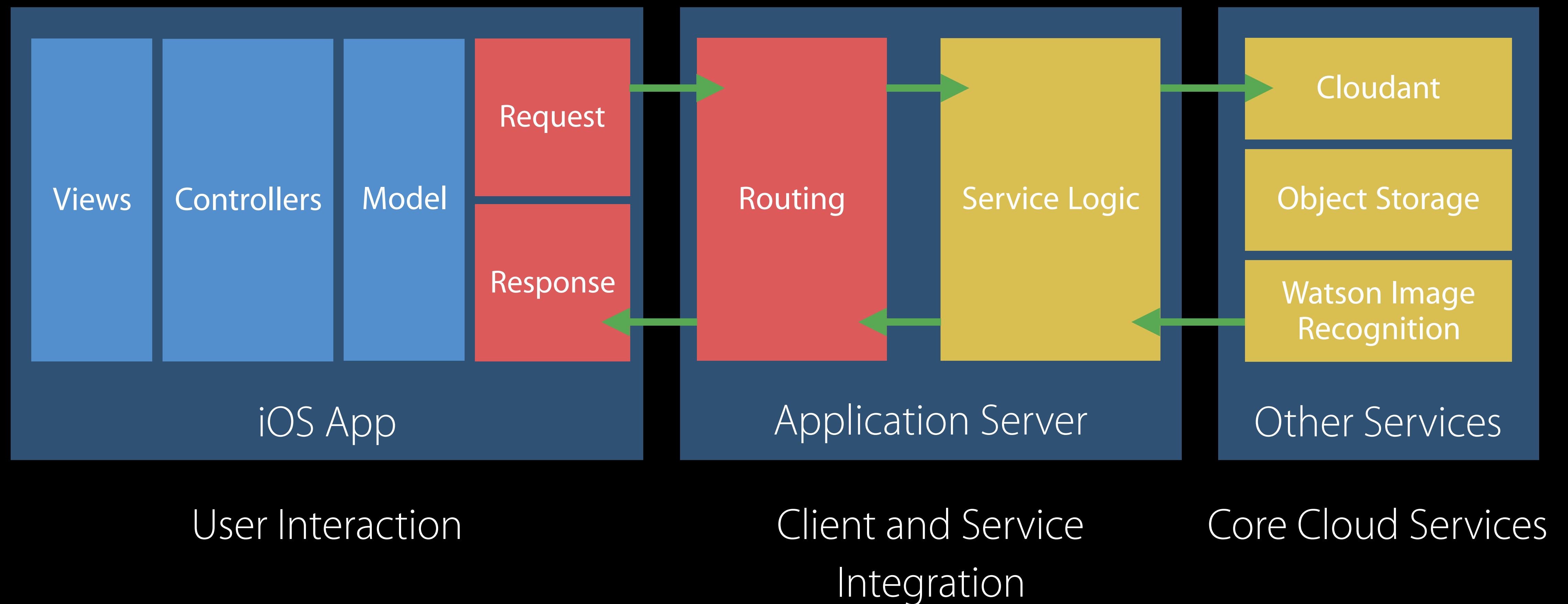
# End-to-end Swift

BluePic design pattern

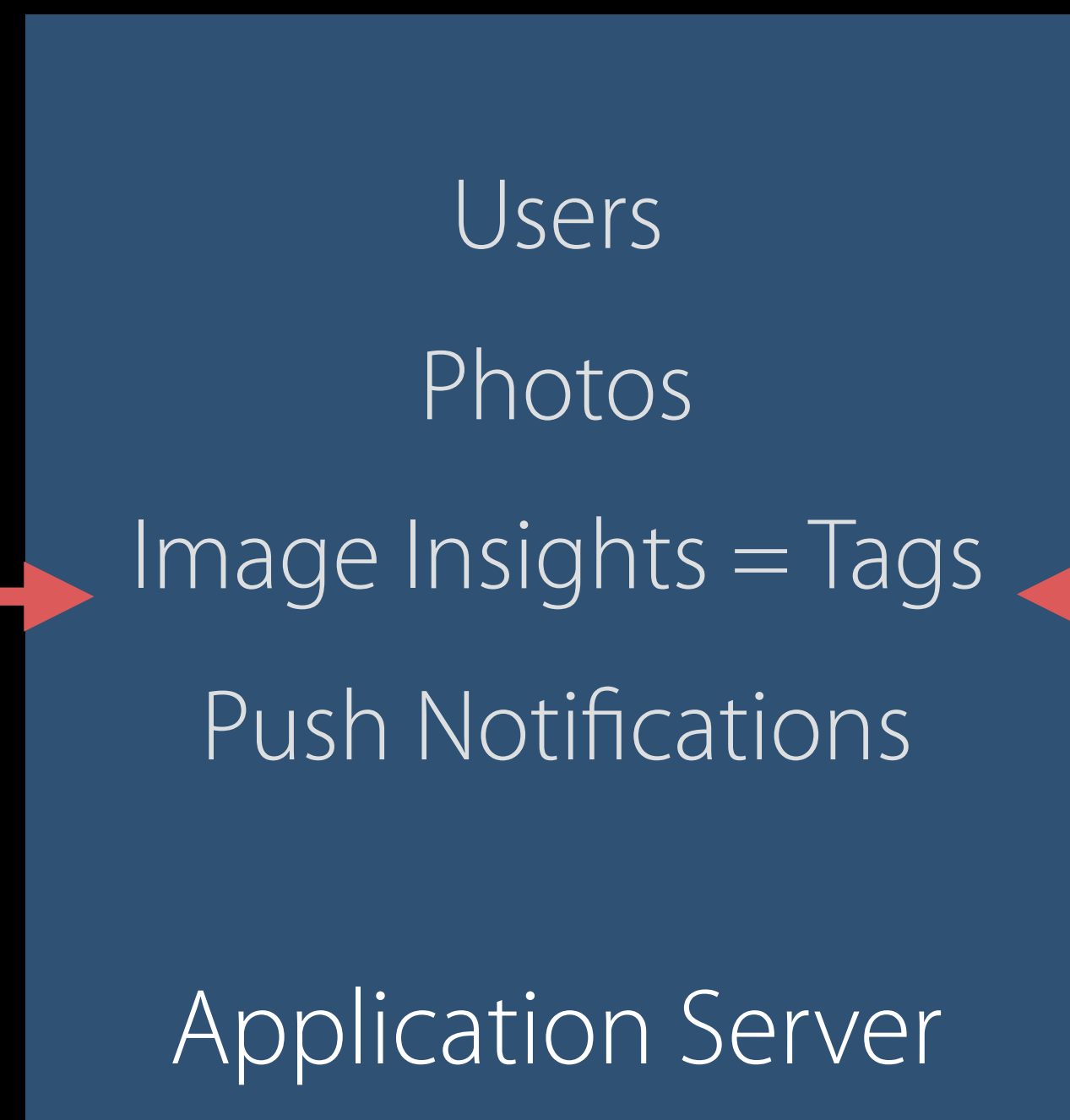
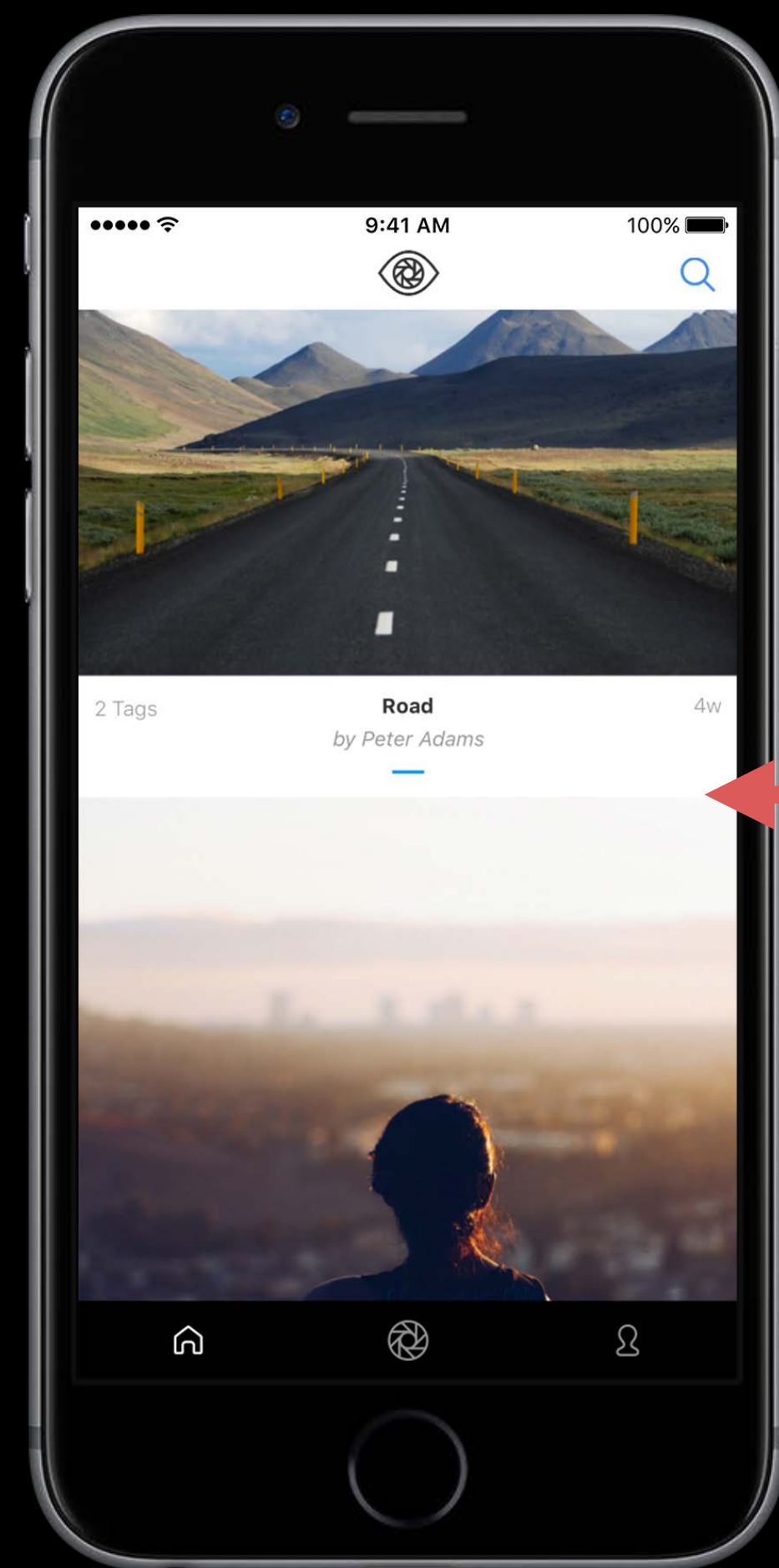


# End-to-end Swift

BluePic design pattern



# End-to-end Swift BluePic design pattern



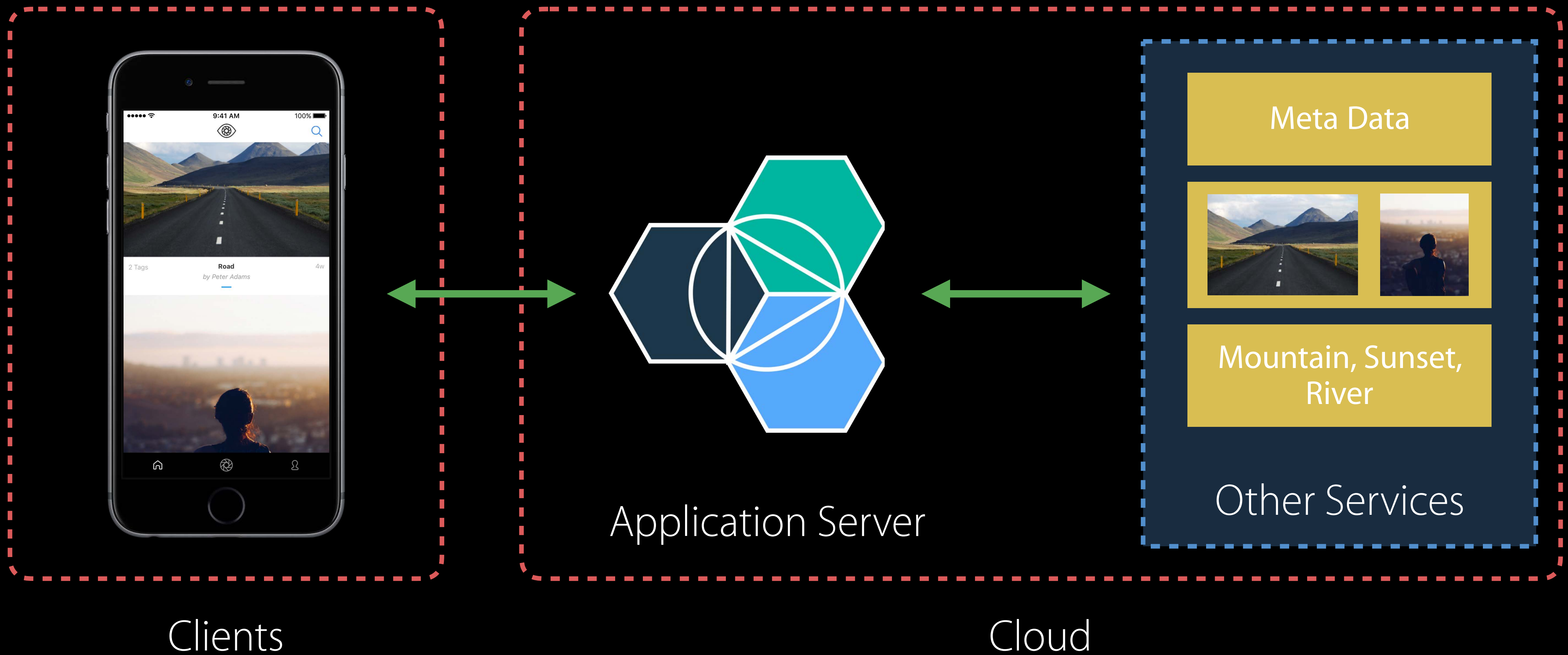
Client and Service  
Integration



Core Cloud Services

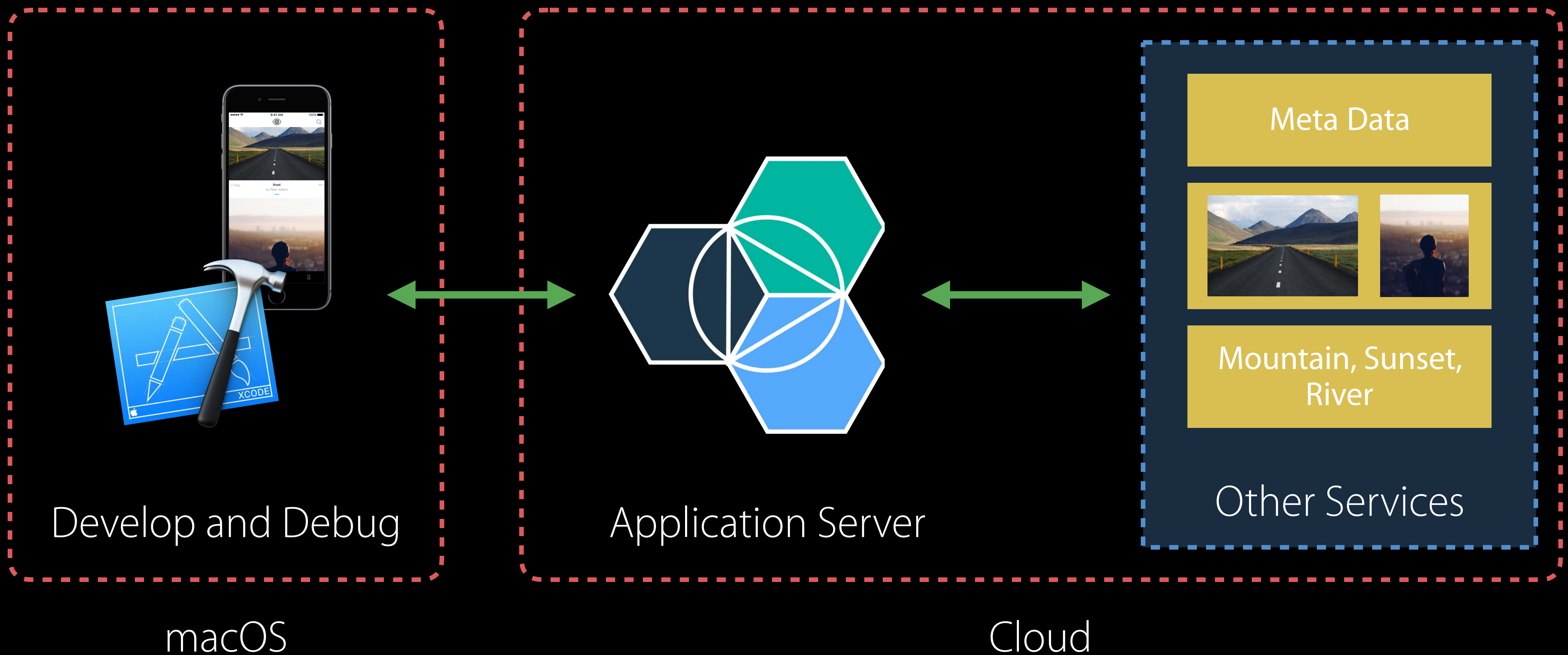
# End-to-end Swift

## Application tiers



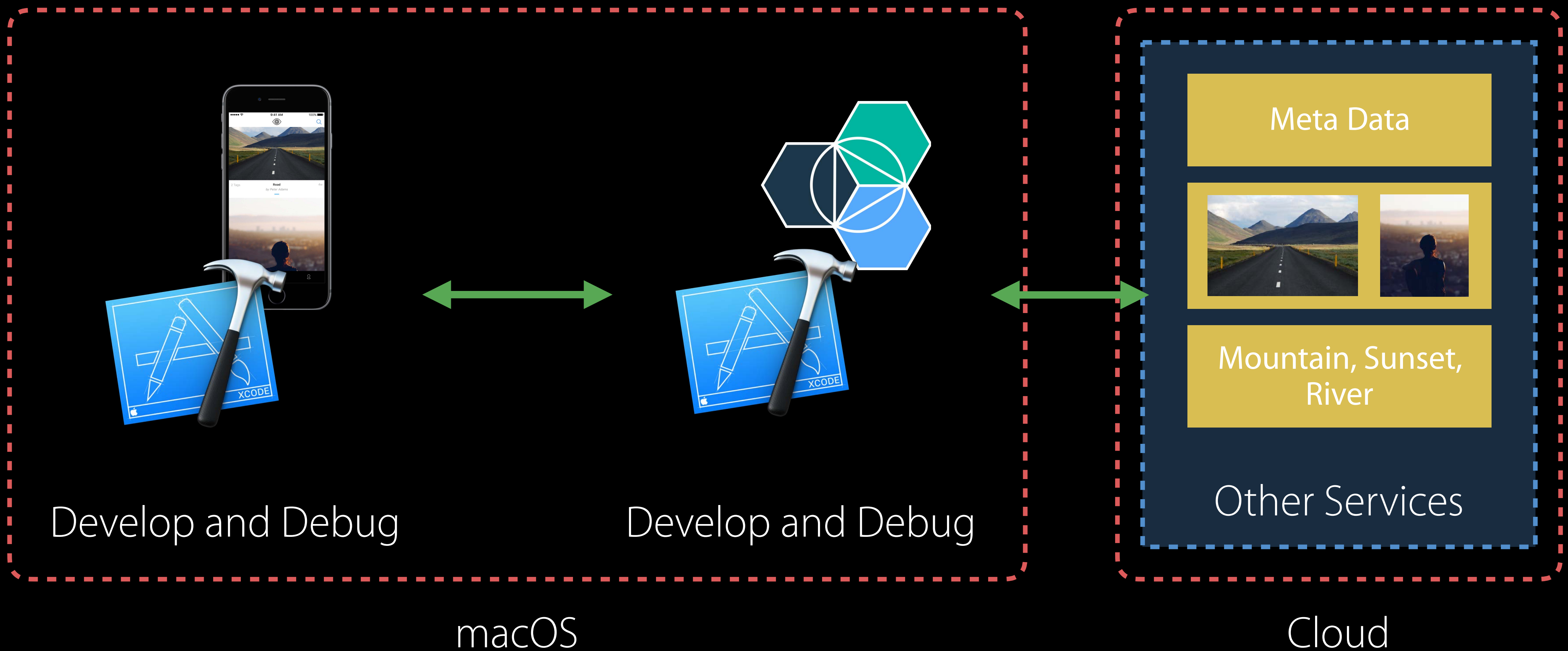
# End-to-end Swift

## BluePic development setup



# End-to-end Swift

## BluePic development setup



# End-to-end Swift

BluePic development setup

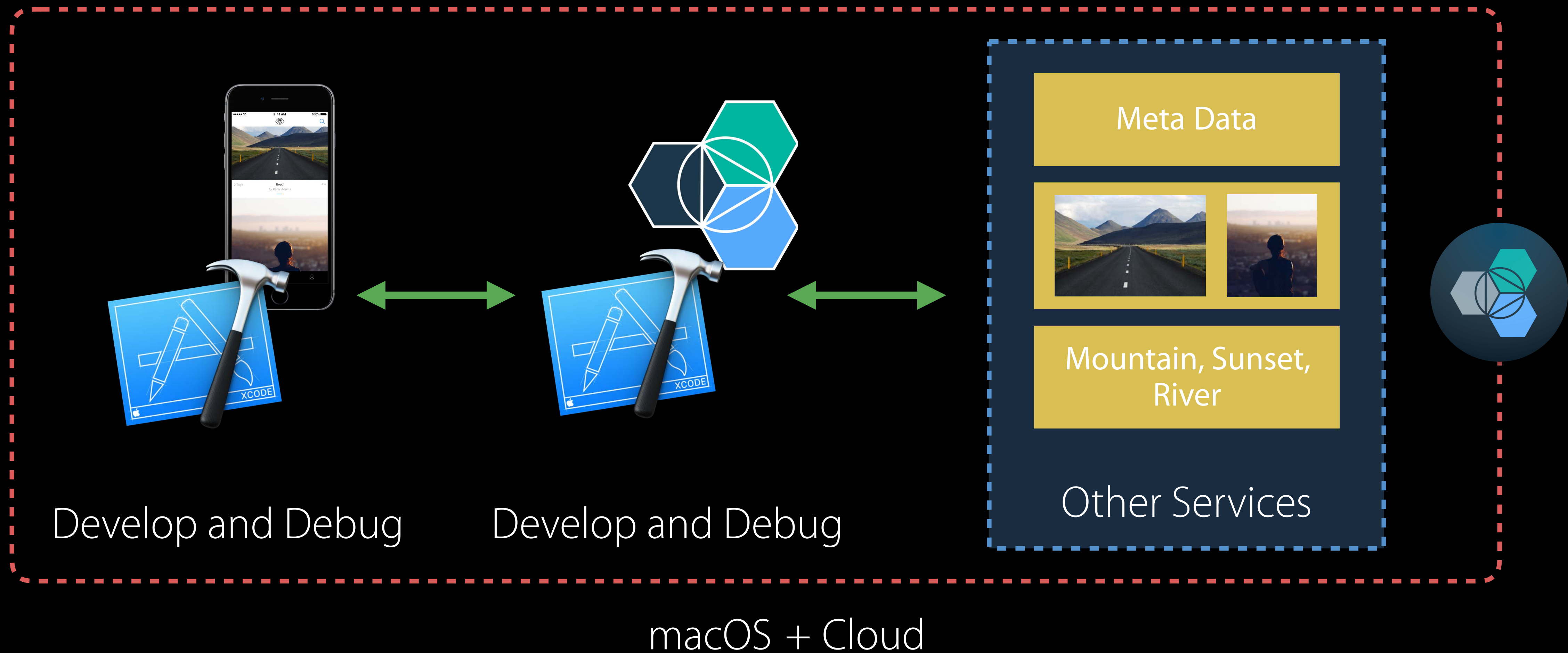


IBM Cloud Tools for Swift (Mac App)



# IBM Cloud Tools for Swift

## End-to-end Swift Development

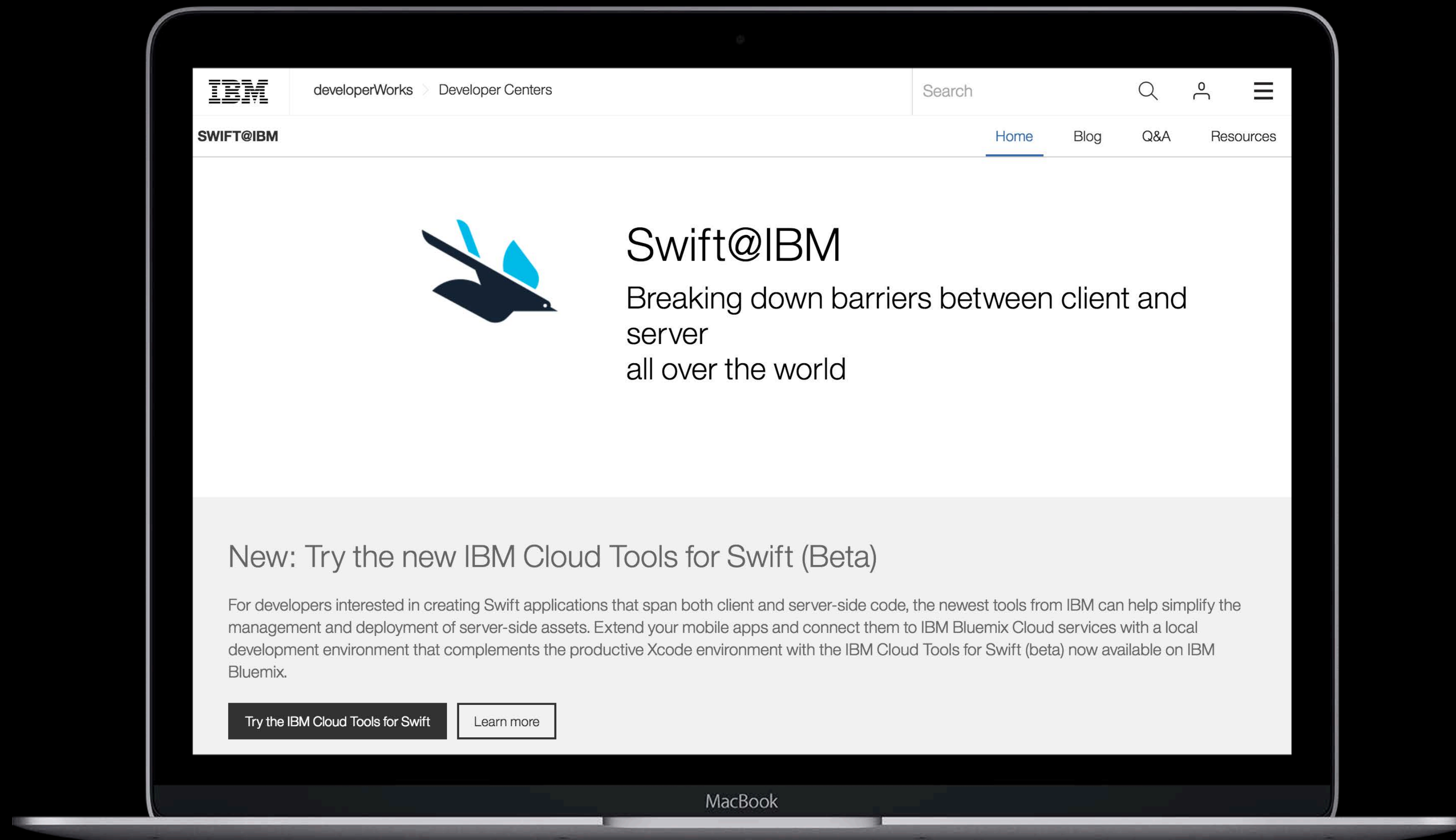


*Demo*

End-to-end Swift Application

# Get Started Today

## IBM Swift tools and tech



<http://developer.ibm.com/swift>

# Real-world Server-side Swift

IBM review

Open source contributions

Helping to grow the community

Building tools for a consistent world

# Contribution

Chipping in

Implementations

API Design, guidelines and language Features

Your Packages

More Information

<https://developer.apple.com/wwdc16/415>

# Related Sessions

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Swift API Design Guidelines

Presidio

Tuesday 10:00AM

---

What's New in Foundation for Swift

Mission

Tuesday 4:00PM

---

Understanding Swift Performance

Mission

Friday 11:00AM

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Concurrent Programming with GCD in Swift 3

Pacific Heights

Friday 4:00PM

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# Labs

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Swift Open Hours

Developer Tools  
Lab A

Friday 9:00AM

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Cocoa Lab

Frameworks Lab A Friday 1:00PM

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GCD Lab

Frameworks Lab D Friday 5:00PM

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