Lessons Learned Wrapping an Objective-C Framework in Swift

NSLondon

JP Simard, *@simjp*, *realm.io*

Why?

Why?

API Improvements

```
// Go from this:
func objcFunc(a: AnyObject!, b: NSArray!) -> NSString!
// to this:
func swiftFunc(a: ClassA?, b: [Int]) -> String?

// Or using autoclosures, generics,
// default parameter values, making types
// and optionality explicit, etc.
```

Why?

To Expose Unmappable Interfaces

```
// Objective-C variable arguments aren't exposed to Swift
+ (RLMResults *)objectsWhere:(NSString *)format, ...;
// neither are #defines
#define NSStringFromBool(b) (b ? @"YES" : @"NO")
// or certain declarations
NSVariableStatusItemLength
```

Why Not Rewrite in Swift?

1. Lazy
2. No significant gains from the language
3. Existing codebase complex and/or mature
4. Yup, still lazy

Porting an API

```
RLMObject                                  // ObjC
Realm.Object                               // Swift
RLMObject.allObjects()                     // ObjC
objects<T: RLMObject>(type: T.Type)        // Swift
```

Distribution

1. Dynamic framework logical
2. Can't statically link Objective-C framework in Swift framework (no modules)

Exposing Just the Right Interfaces

Exposing Just the Right Interfaces

Making sure Objective-C is still importable

1. Module Map needs to be preserved
2. Must be a dynamic framework

Exposing Just the Right Interfaces

Exposing private interfaces just for Swift binding

Unfortunately bridging headers don't work for framework targets

Exposing Just the Right Interfaces

Exposing private interfaces just for Swift binding

```
framework module Realm {
    umbrella header "Realm.h"

    export *
    module * { export * }

    explicit module Private {
        header "RLMRealm_Private.h"
    }
}
```

Testing

1. Don't test functionality, test interfaces
2. Write equivalency tests

Documentation

1. Compare Objective-C & Swift interfaces side by side
2. Copy docs from Objective-C
3. Convert doxygen format to ReST

Links

- This talk: *github.com/jpsim/talks*
- Realm/RealmSwift: *github.com/realm/realm-cocoa*
- jazzy: *github.com/realm/jazzy*

Thank You!

```
NSLondon().questions?.askThem!
```

JP Simard, *@simjp*, *realm.io*