# OS X App Development with CloudKit and Swift

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# Contents at a Glance

# Contents

# About the Author

**Bruce Wade** is a software engineer from British Columbia, Canada. He started in software development when he was sixteen years old by coding his first website. He went on to study computer information systems at DeVry Institute of Technology in Calgary. To further enhance his skills, he studied visual and game programming at The Art Institute Vancouver. Over the years he has worked for large corporations as well as several startups. His software experience has led him to utilize many different technologies, including C/C++, Python, Objective-C, Swift, Postgres, and JavaScript. In 2012 he started the company Warply Designed to focus on mobile 2D/3D and OS X development. Aside from hacking out new ideas, he enjoys spending time hiking with his boxer Rasco, working out, and exploring new adventures.

# About the Technical Reviewer

**Charles Cruz** is a mobile application developer for the iOS, Windows Phone, and Android platforms. He graduated from Stanford University with B.S. and M.S. degrees in engineering. He lives in Southern California and runs a photography business with his wife (www.bellalentestudios.com). When not doing technical things, he plays lead guitar in an original metal band (www.taintedsociety.com). Charles can be reached at codingandpicking@gmail.com and @CodingNPicking on Twitter.

# Introduction

Over the years, applications have required more and more data that couldn't possibly fit onto a single computer. Not only that, but with mobile devices developers needed to find a way to ensure the same data can be shared between all devices. Apple also saw this need and invented CloudKit, which allows data storage to be infinitely scaled to meet user demand. CloudKit also works across all Apple products, and Apple even recently opened up JavaScript APIs that allow us to develop web applications that access the same data as our desktop, TvOS, and iOS devices.

In this book we are going to work through creating an OS X application from prototype to fully functional, data-driven app using CloudKit. When you are finished with this book you will be able to leverage CloudKit for your own OS X or iOS applications. We will not be covering iOS development in this book; however, the APIs you use for OS X and iOS are identical.

## How This Book Is Organized

### Chapter 1: Introduction

This will provide an overview of this book, what software is required, what you are expected to know, and an overview of what we will be creating.

### Chapter 2: Prototyping Our App

In this chapter we will really start to dive into the planning of our dog parks app. We will primarily be using Sketch 3 in this chapter; however, we will also learn how to use Keynote for basic animations to get a feel for our app before we start coding or even open Xcode.

### Chapter 3: Figuring Out What Data We Need to Store

In this chapter we will take a closer look at our prototype from the previous chapter to dissect what data we really need in order to turn this prototype into a data-driven application. We will also determine which data should be public and which should be private for only your eyes.

### Chapter 4: Introduction to CloudKit

In this chapter we are going to be taking a closer look at CloudKit and how it works. We will cover user authentication, public and private databases, record types, security roles, subscription types, and zones. While we cover these topics we will be taking a closer look at the CloudKit dashboard.

## Chapter 5: Creating Test Data with CloudKit Dashboard

In this chapter we will start adding test data that we will use to display in a working app in subsequent chapters. We will cover how to create public data and how to edit and delete data through the dashboard.

## Chapter 6: Making Our Prototype More Real

Finally, in this chapter we will start migrating our prototype to Xcode so we can have a working app. We will only write enough code to handle authentication and retrieving and displaying our test data in our running app.

## Chapter 7: Updating CloudKit Data from Our App

In chapter 5 we learned how to create/edit/delete data using the CloudKit dashboard. In this chapter we will learn how to update our test data from our app. Then we will implement security roles so users cannot edit data that they have not created themselves.

## Chapter 8: Adding Local Cache to Improve Performance

Finally, in this last chapter we will look at improving performance using a local cache of our data. This will both save server resources and allow the basics of the app to still work, even when there are network connectivity issues.