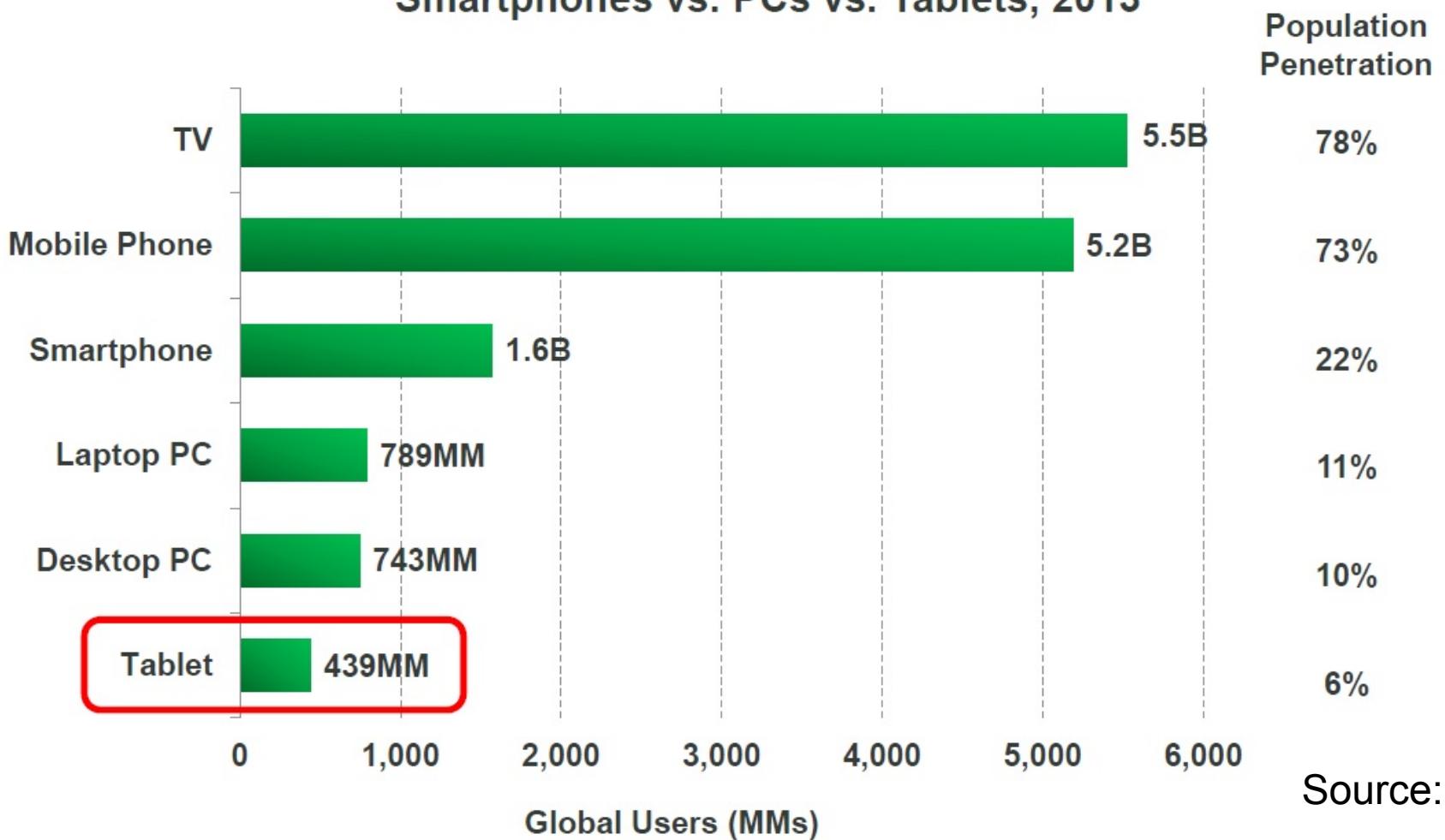


# Mobile App Architecture

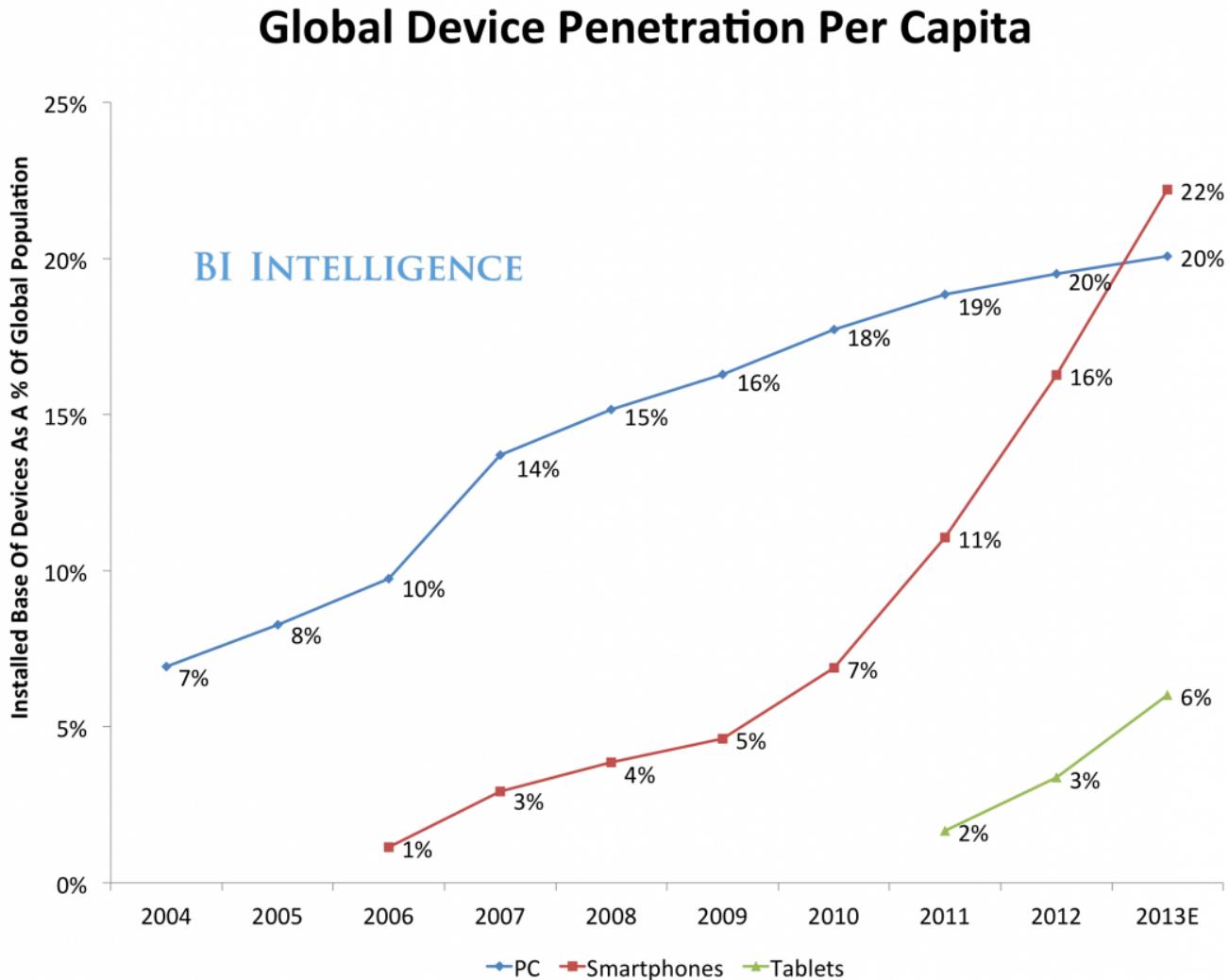
The foundations of app development

# Why Mobile?

Global Users of TVs vs. Mobile Phones vs.  
Smartphones vs. PCs vs. Tablets, 2013



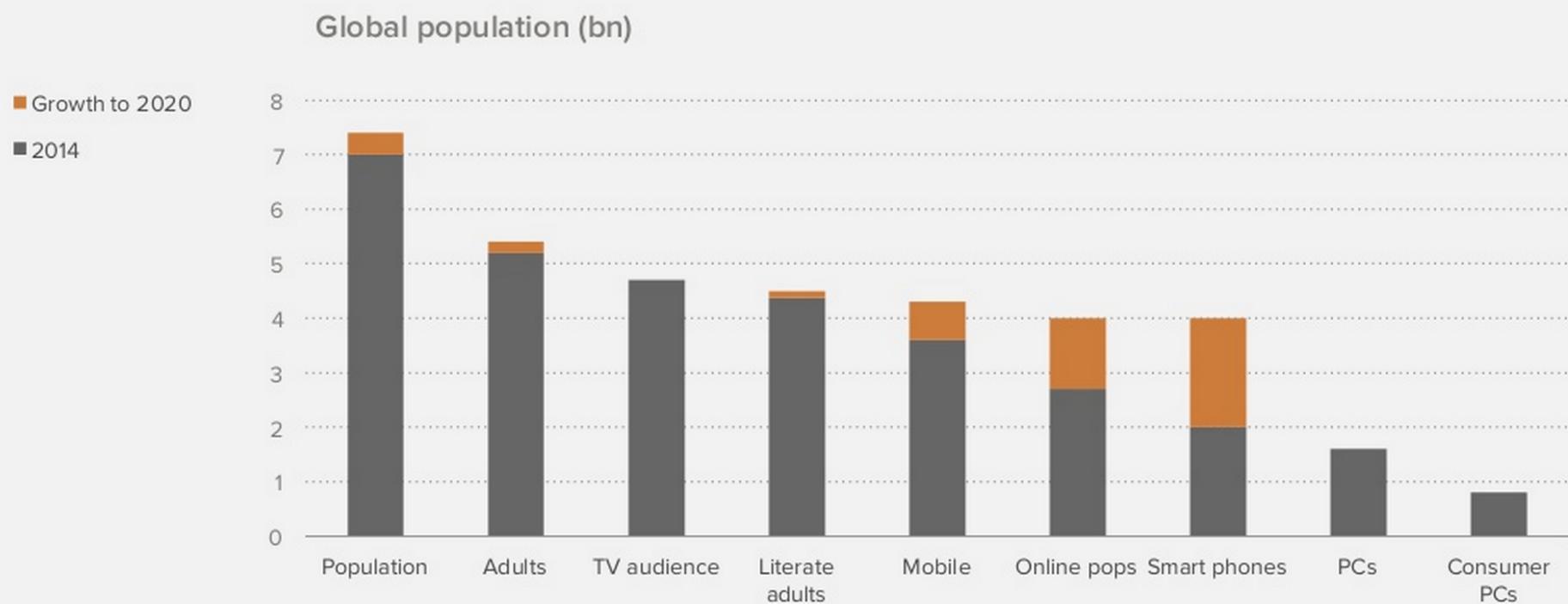
# Why Mobile?



# Why Mobile?

## The world in 2020

By 2020 80% of the adults on earth will have a smartphone



# Why Mobile?

Here are a few key facts:

- As of Jan 2015, **1.8B** people own a smartphone. Up **25% since 2013**.
- About **1 out every 4 human beings** on earth today uses a smartphone.
- Mobile internet usage **will overtake desktop** internet usage in 2015.

# Types of Mobile Apps

Broadly, there are **two categories** of mobile apps available:

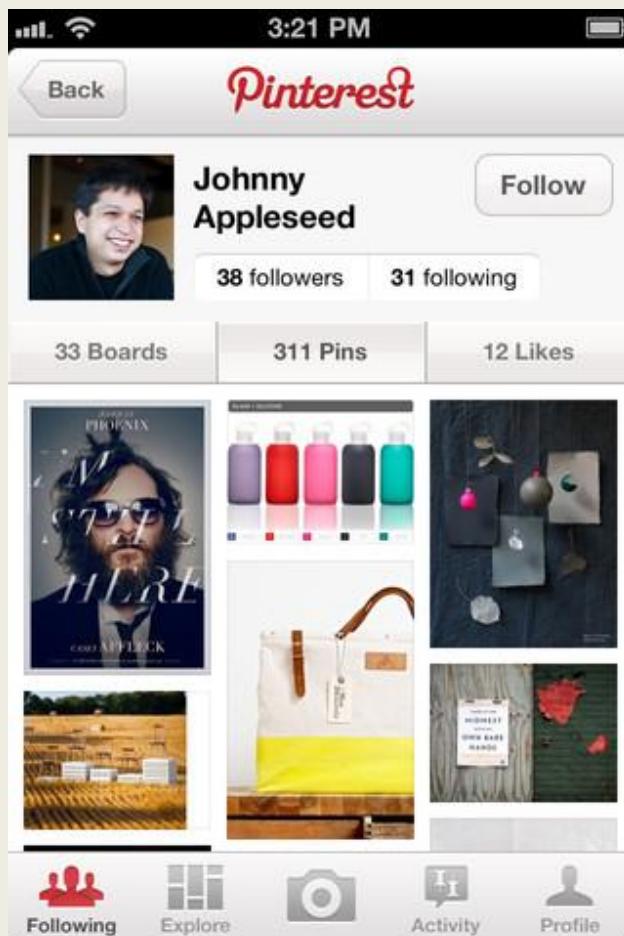
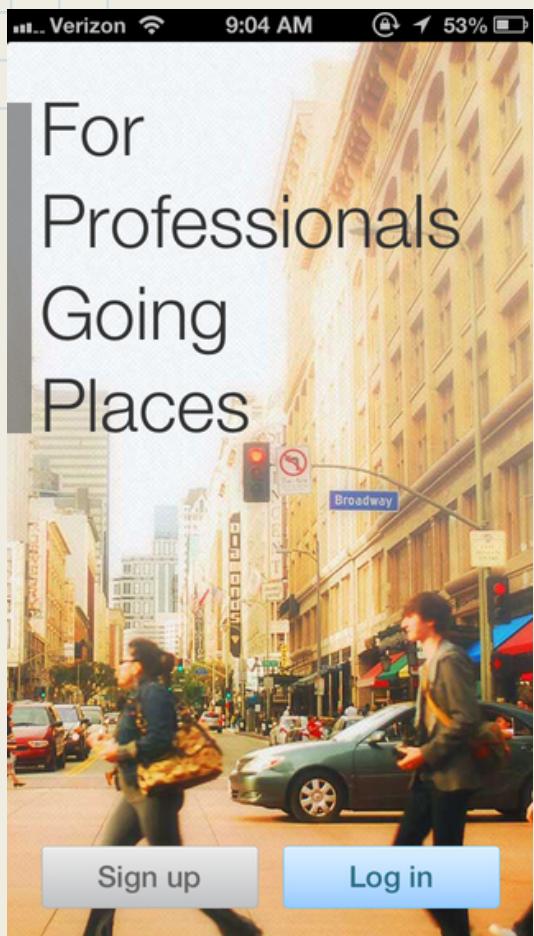
- **View-heavy data-driven**
  - Email, Social, News, Todo
- **Graphics-heavy drawing**
  - Games, Creative Art, Photo Editing

# Types of Mobile Apps

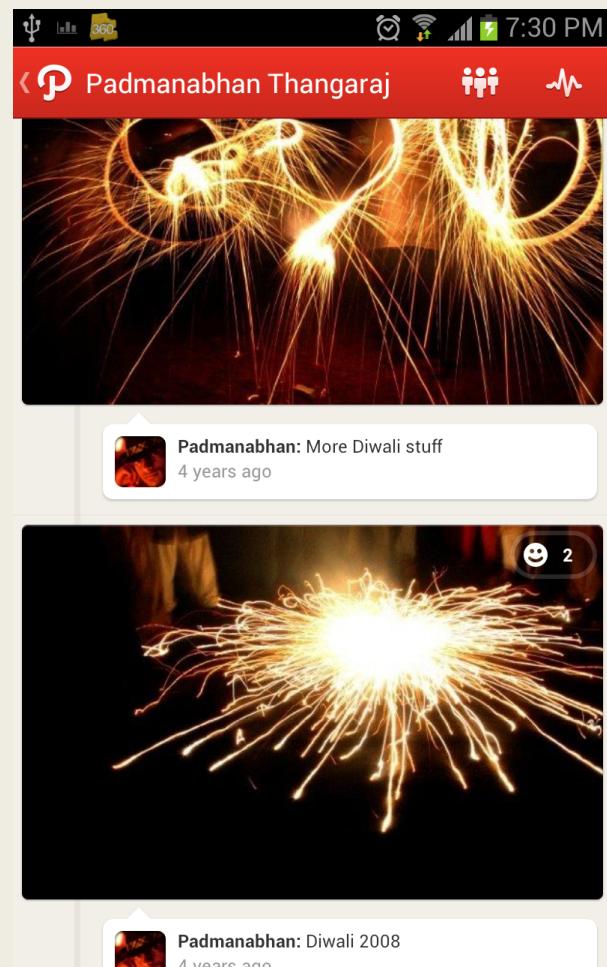
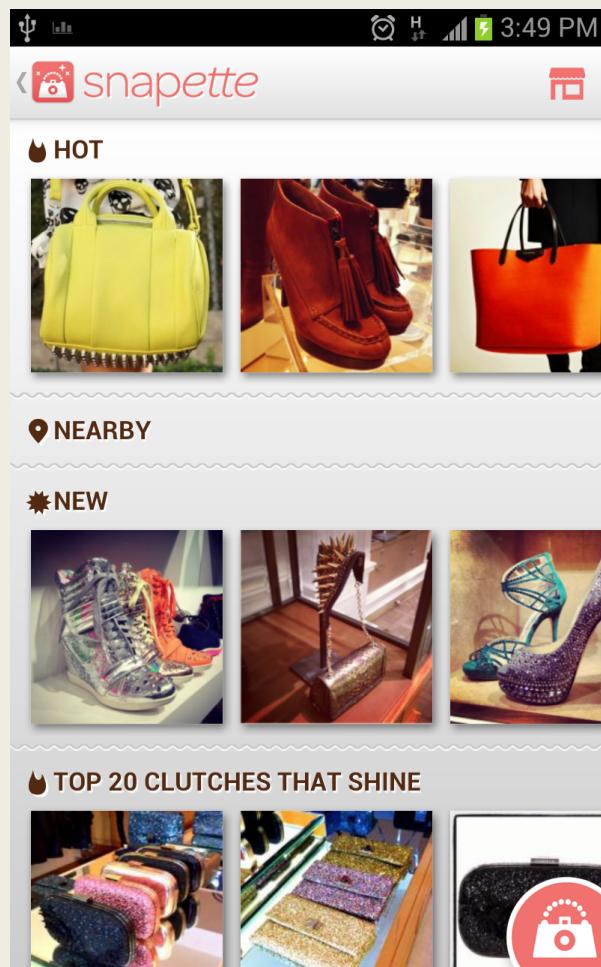
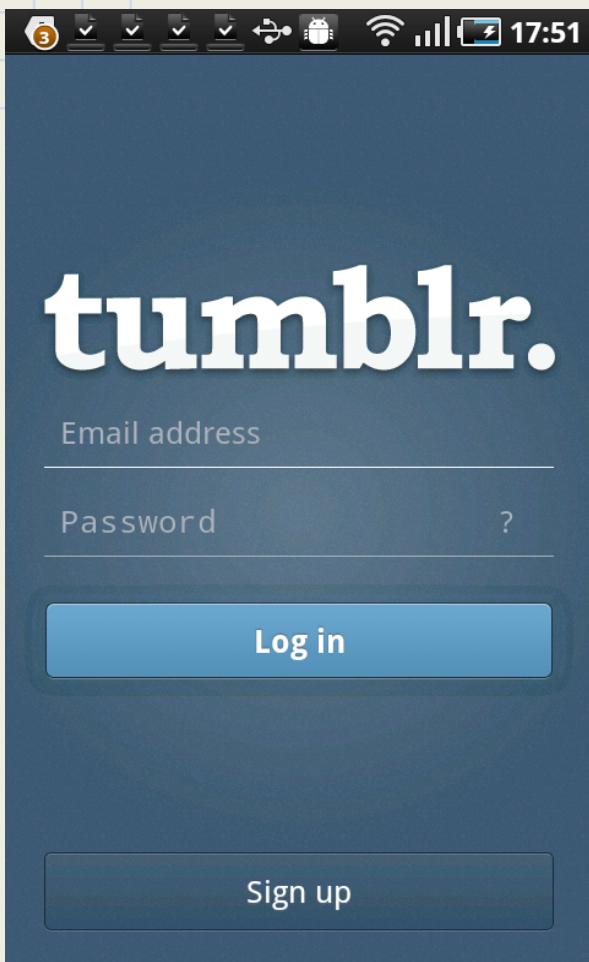
We are focusing on **data-driven apps**. Why?

- Control-based data driven apps are the **bread and butter** of mobile development
  - Instagram, Facebook, Pinterest, Twitter
- Complex drawing-based apps are **more specialized** and tend to be more **advanced**.

# Mobile Apps (iOS)



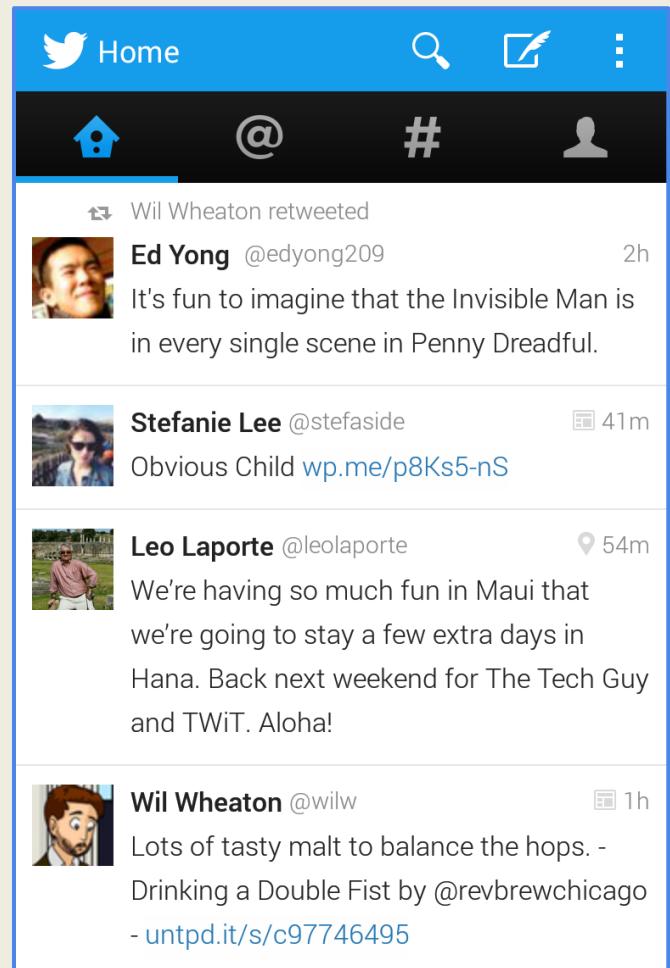
# Mobile Apps (Android)



# App Breakdown

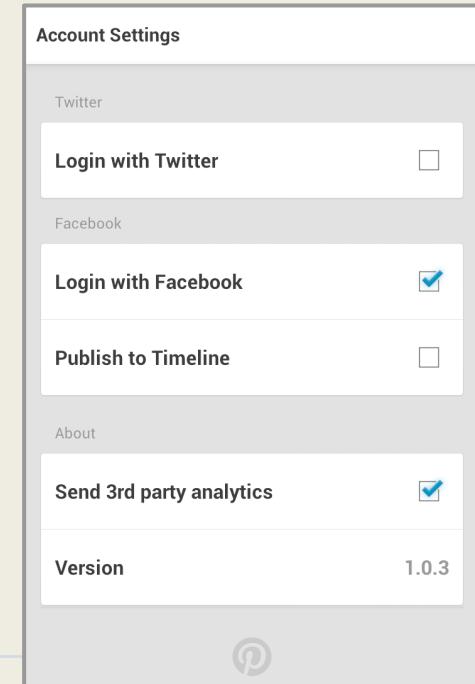
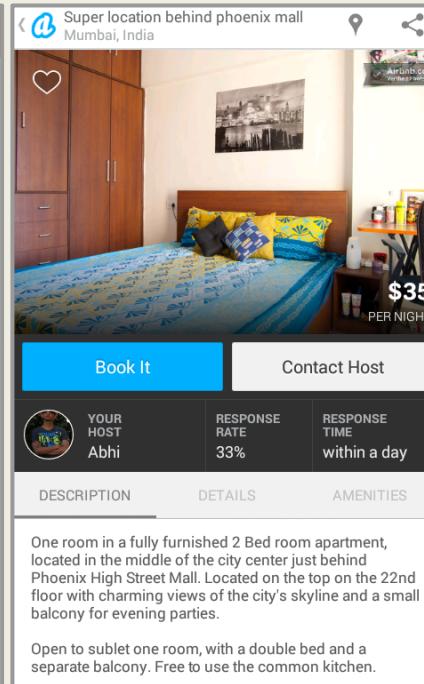
What specific topics would we need to implement the Twitter or Facebook app ourselves?

- How to add action icons i.e compose?
- How to insert clickable hyperlinks?
- ???

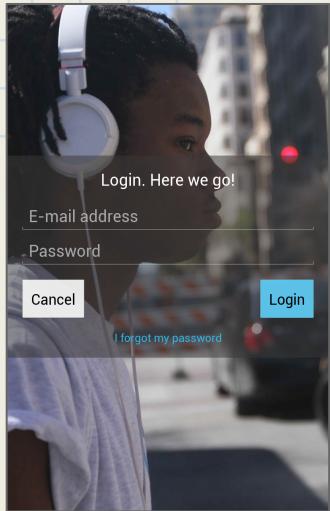


# Screen Archetypes

- What does a typical data-driven app look like?
- What are the most common screens?



# Screen Archetypes



### Sign In

SIGN IN REGISTER

First Name Last Name  
Your name will be publicly displayed on Etsy. Both are optional.

Your Email  
Password Confirm Pass...

Username  
By registering, you confirm that you accept our [Terms of Use](#) and [Privacy Policy](#).

**Register**

Status Photo CheckIn

**Cracked.com** If you want level-headed advice about preparing for a global crisis, who better to turn to than a nude photographer who played a doctor alien on TV?

**10 Real Survival Guides for One Very Fake Apocalypse** cracked.com

As we move into 2012, the final year of human existence, I wanted to take a look back on the last great...

26 minutes ago

**Abhineet Prasad and Akhil Mehta** like Abhimanyu Vatsya's photo.

**Wall Photos**

Super location behind phoenix mall Mumbai, India

\$35 PER NIGHT

**Book It** **Contact Host**

YOUR HOST Abhi RESPONSE RATE 33% RESPONSE TIME within a day

DESCRIPTION DETAILS AMENITIES

One room in a fully furnished 2 Bed room apartment, located in the middle of the city center just behind Phoenix High Street Mall. Located on the top on the 22nd floor with charming views of the city's skyline and a small balcony for evening parties.

Open to sublet one room, with a double bed and a separate balcony. Free to use the common kitchen.

Post

Leave a note

I'm with... I'm at...

**SAVE**

**Etsy**

SHOP OWNER Nicole Kelner New Hope, United States Follow Contact

Convertible iPhone 5/Drop \$38 Convertible iPhone 5/Drop \$38

Convertible iPhone 5/Drop \$38 Convertible iPhone 5/Drop \$38

Convertible iPhone 5/Drop \$38 Convertible iPhone 5/Drop \$38

Account Settings

Twitter

**Login with Twitter**

Facebook

**Login with Facebook**

**Publish to Timeline**

About

**Send 3rd party analytics**

Version 1.0.3

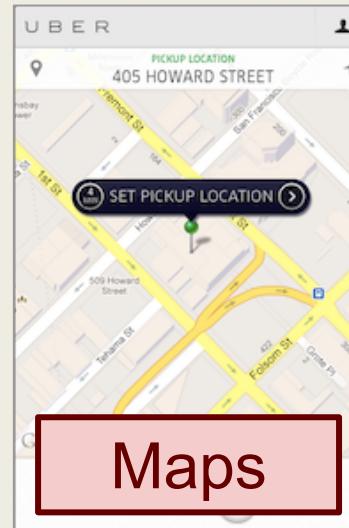
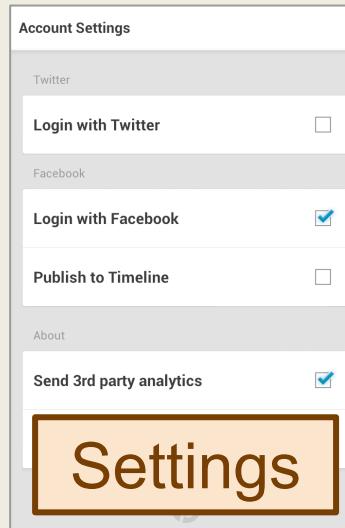
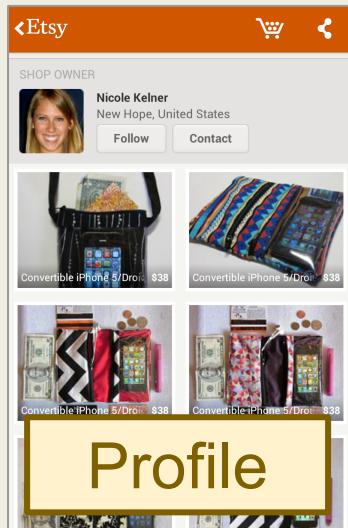
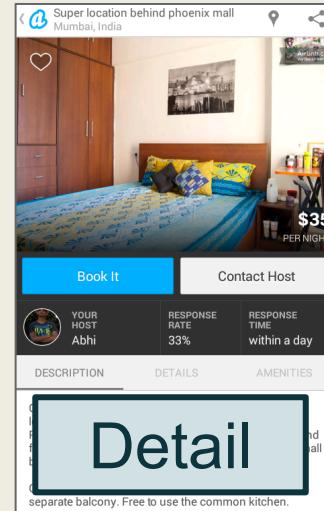
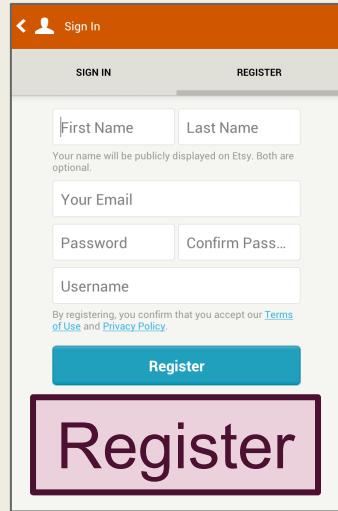
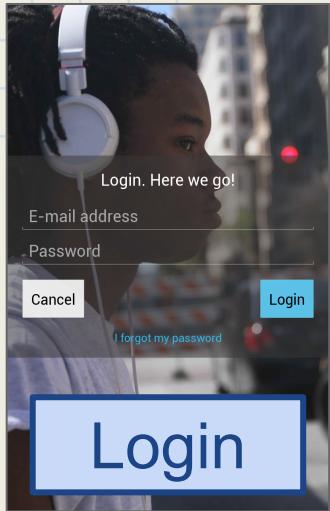
UBER

PICKUP LOCATION 405 HOWARD STREET

**SET PICKUP LOCATION**

TAXI UBERX BLACK CAR SUV

# Screen Archetypes

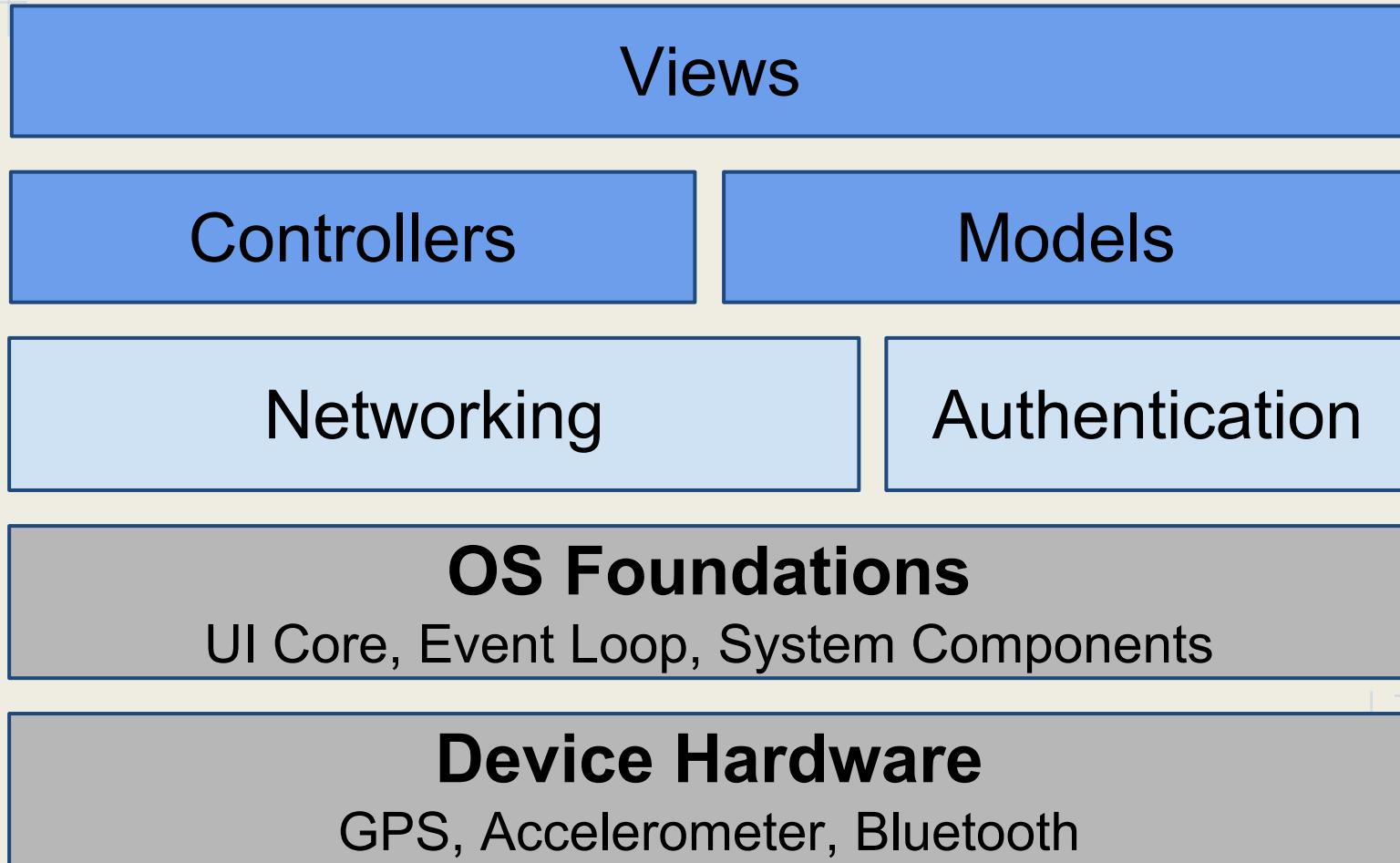


# Application Architecture

Learning to build real **data-driven apps**  
requires a few core concepts.

1. **Views:** Common Controls and View Layout
2. **Events:** Interaction and Event Handling
3. **Navigation:** Screen Flows and Navigation
4. **Data:** Models, Networking and Persistence
5. **Platform:** OS Services, Hardware, Accessing Sensors

# Mobile Client Architecture

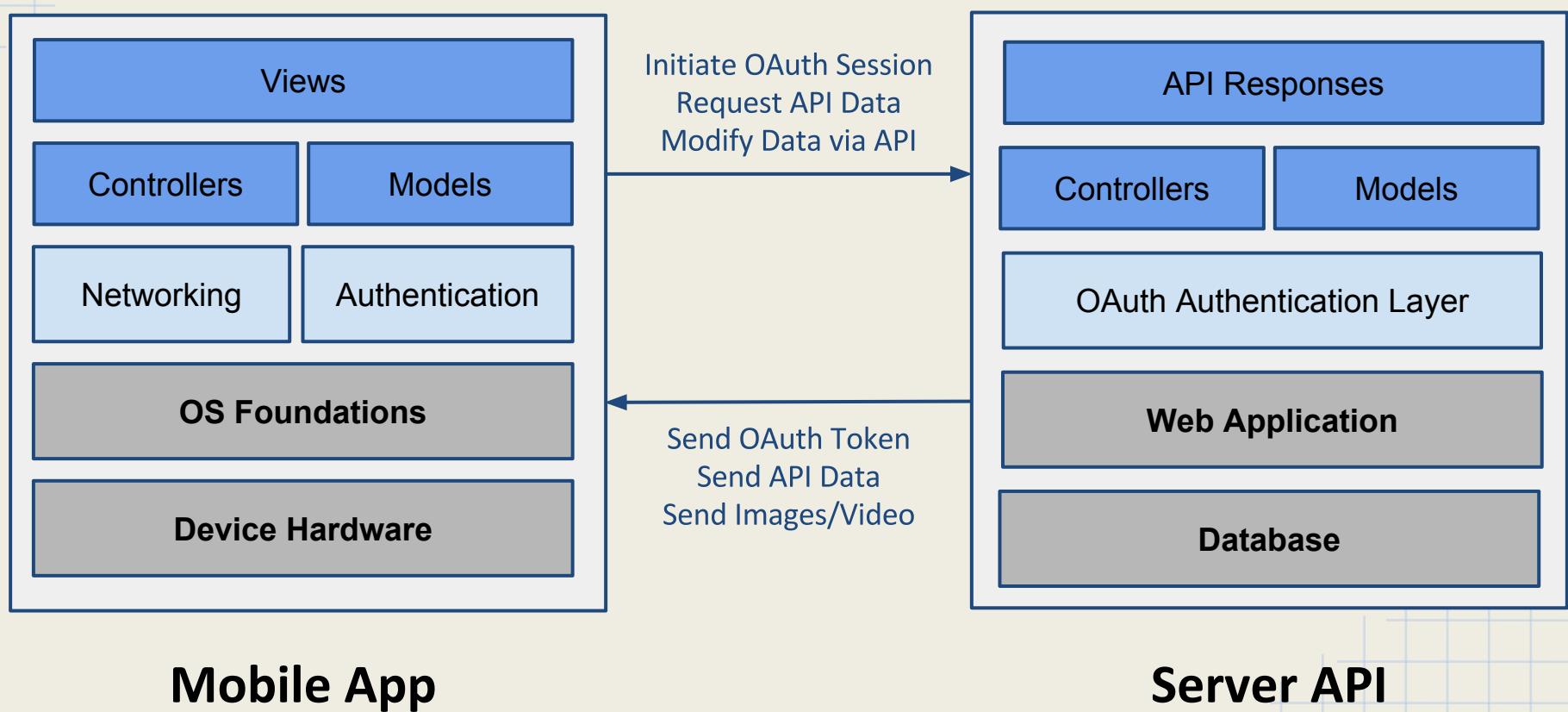


# Application Architecture

Real **data-driven apps** usually require an API.

- Apps **display data** and this comes from a **source**.
- Most mobile apps rely on **server-side APIs** for data.
- When developing mobile, consider what sources your app's data is coming from / being saved to.
- Many apps **leverage existing APIs** while others require a custom server-side component.

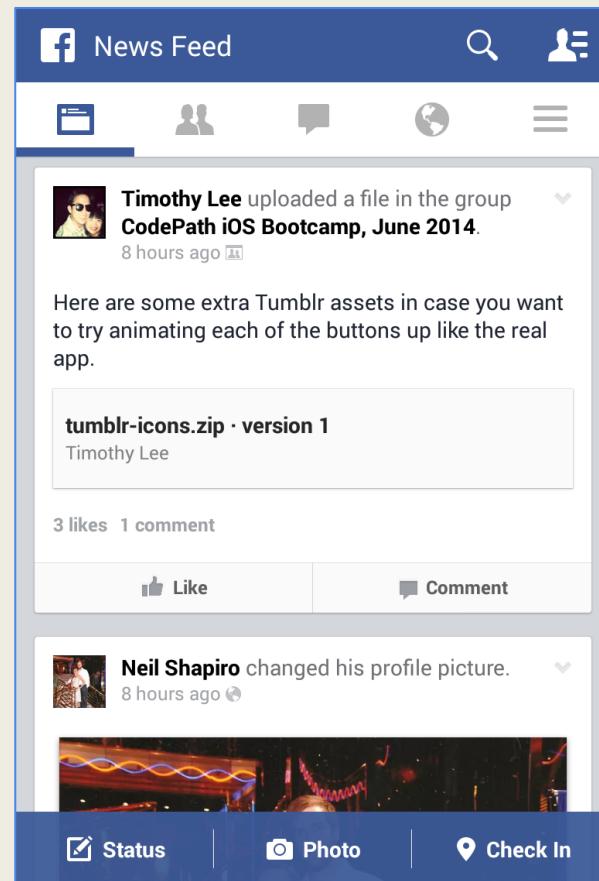
# Application Architecture



# Views

Views display data or receive data inputs.

- What static views can you not implement with a scrollable view, labels, images, buttons, and maps?
- What form can you not implement with text inputs, switches, buttons, and sliders?



# Controllers

Controllers work with views and models to **implement dynamic behaviors** including:

- Network requests (API interaction)
- Persistence (Storing data)
- Event handling (Button clicks, Data Input)
- Navigation (Moving between app views)

# Models

Models on mobile usually reflect the server state for **data retrieved via APIs** including:

- Model definitions (properties, relationships)
- JSON/XML serialization/deserialization
- Persistence Storage (database)
- Data Formatters

# Networking

Networking on mobile means **interacting with a server** in one of the following ways:

- Interacting with models via a REST API
- Displaying external images in the view
- Audio/video playback
- Socket programming (rare)

# Hardware

Leveraging **device features** including:

- Camera
- GPS
- Accelerometer
- Bluetooth, AirDrop
- Contacts, Calendar, SMS, Mail

# Architecture Review

In summary, we have reviewed:

- Mobile is growing fast and demand is high
- We are focusing on data-driven app development
- Data-driven apps require a server-side API
- All mobile development has a consistent architecture
- Mobile largely is MVC + Networking + Hardware