Web vs Native applications

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The Scene

- Mobile processors more powerful than Apollo 11 computer! (Zakas, 2013)*
- Smart mobile devices use keeps growing
  - Proportion of adults with smartphones in the UK has reached 76% in 2017 (71% in 2016) (Ofcom Report Q1 2017)
  - 15% of global Internet traffic in 2017 (21 exabites!). Expected to double in 2021, exceeding PC traffic (Cisco Systems white paper)

The scene

Global Handset Data Traffic

The Scene

- Bring your Own Device (BYOD) policies in organisations (Ars Technica)
- Mobile networks & Wifi: ease of access
The rise of apps

- Dramatic market growth since first iPhone apps
How the web works on mobile devices

- W3C Mobile Web Initiative
  - Ensures access to the web for mobile devices
- HTML5
  - `<audio>` and `<video>` tags are game changers
- CSS3
  - Adapting to responsive web design
- SVG Tiny
  - Adapting images to scalable vectors
Mobile Web Architecture

This is HTTP

source: W3C
How apps work

- HTTP
- 3 layers
  - Presentation
  - Business
  - Data
- Developed for each platform
  - Android studio (main languages: Java, Kotlin)
  - Xcode for iOS (main language is Swift)
How apps work

source: Microsoft Application Guides
Similarities and Differences

What is the same?
- Native apps and web apps both use HTTP

What is different?
- Native apps do not require a browser, web apps do.
- Native apps are written for specific devices/platforms in specific languages, web apps are written for all devices/platforms using HTML5 and CSS3.
- Native apps sit on the devices, web apps don’t.
Native apps

Benefits
- Less connection demand
- Better user interface
- More robust / reliable
- Better functionality

Drawbacks
- More expensive development
- Platform specific, not transferable
- Hard to monetise - platform’s cut is large
- Less ‘Open’ mentality
Which approach is winning....?

- It was thought a number of years ago that “the web was dying, apps were killing it”
- Now there is convergence and a blurring of boundaries with Hybrid Apps - perhaps the distinction is increasingly irrelevant?
- Maybe we should think of the web as anything which is transmitted in any way using HTTP?
- How will the Internet of Things change the game further.....?