

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](#))

*Zakas, Nicholas C. (April 2013). "The Evolution of Web Development for Mobile Devices: Building Web sites that perform well on mobile devices remains a challenge". *Communications of the ACM*. New York, New York: Association for Computing Machinery. 56 (4): 42. doi:10.1145/2436256.2436269.

The scene



The Scene

- Bring your Own Device (BYOD) policies in organisations ([Ars Technica](#))
- Mobile networks & Wifi: ease of access



(c) Signal, by John Stanmeyer,

The rise of apps

- Dramatic market growth since first iPhone apps



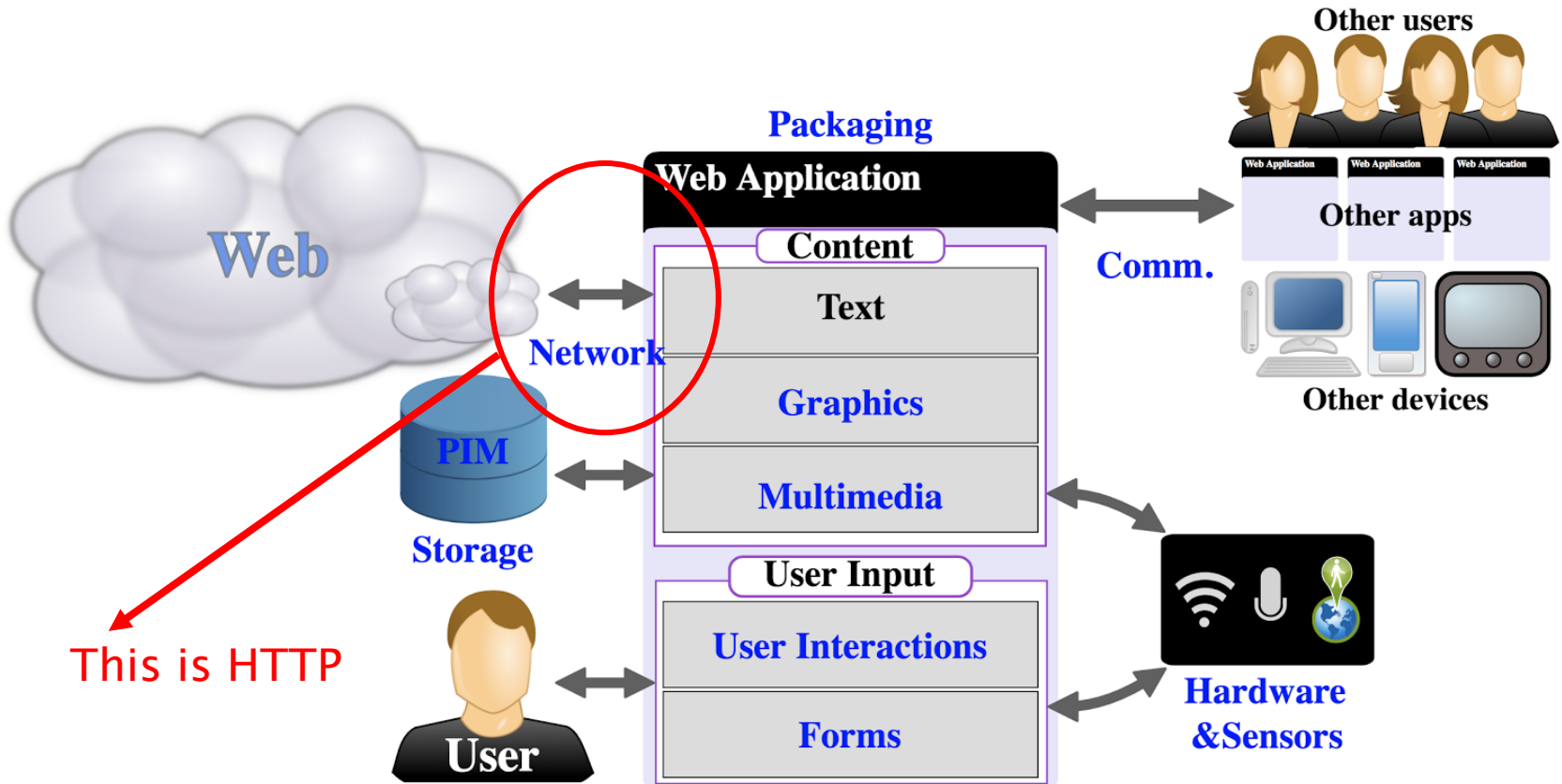
How the web works on mobile devices



- 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



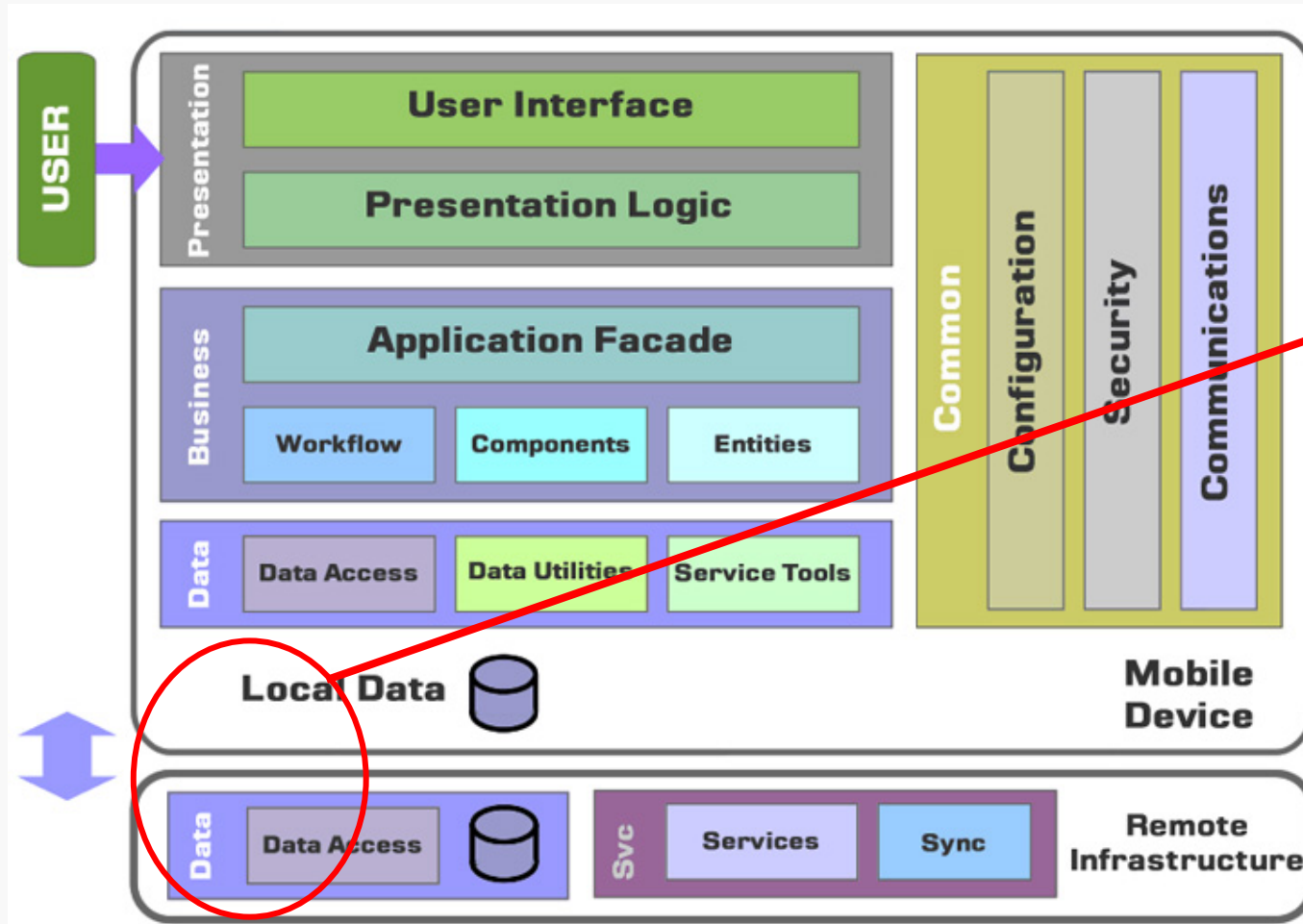
source: W3C

How apps work

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



How apps work



This is HTTP too!

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.....?