2015 Blog (A Universe Theory)

ORIGINAL

How Hardware Tries To Monopolise Context & Why It Shouldn't
Hardware Vendors Should Not Limit Our Digital Experiences

<Summary>

Modern-day applications are increasingly focused on delivering richer mobile user experiences. However, they lack context-awareness. Context is key to delivering rich mobile experiences. But owing to hardware restrictions, mobile apps are incapable of delivering contextually-driven computing.

<Introduction>

With smartphones becoming mainstream, apps have been popularized unprecedentedly. Today there is a plethora of mobile apps out there. There are millions of apps in leading app stores and hundreds or thousands are uploaded each day. Out of the thousands of apps uploaded every month, many go unnoticed while some gain popularity. However, the shelf-life of mobile apps isn't very long. A report published by a mobile attribution and analytics company last year showed, based on category, how many of the total available apps uploaded in stores were

eventually killed. Mobile users delete apps they no longer use everyday. [Ninety percent](#) of the apps that users download are uninstalled within a week.

So why is it that users are so impatient with apps? Personally, I have only download about a dozen apps on my phone - those seemed incredibly useful to me. That's less than the [average global](#) downloads for smartphone users. I am not particularly fond of gaming or entertainment apps but I find utility apps for bill payment, banking and ecommerce quite helpful and so those are the apps I download. However, I delete the ones I don't use very frequently because I don't like seeing more than half a dozen apps on my screen. I would keep them if they were useful. But unfortunately, I find them not be so.

<Discussion>

When it comes to rich mobile experiences, context is everything. Context awareness enables computers to both sense, and react based on their environment. By blending into the immediate environment that the computing device is exposed to, it becomes capable of implicitly responding to the user's requirement.

Context and mobile experiences of today

Context-awareness enables [ubiquitous computing](#) - allowing computing to go beyond the traditional desktop and deliver mobile experiences irrespective of form factor, location and format. Context aware mobile devices, having foreknowledge and information about the circumstances under which they are present and able to operate, become capable of reacting accordingly.

However, apps we find today operate within the peripheries of hardware vendors' walled gardens. The cluster of apps appearing on our phone screens are so [isolated from each other](#) that they cannot deliver a cohesive user experience. My Skype app does not know what I am doing on WhatApp, and my Outlook app has no knowledge of my Hotmail and Gmail data. Although some of these apps offer highly useful and relevant experiences individually, they are incapable of offering coherent, synergistic and contextually rich scenarios.

Why apps fail to deliver contextually rich experiences

Currently, computing requires effort. The idea of pervasive computing should be to eliminate effort. But what we currently do is put effort where it is not needed - simply because sellers are interested in creating walled-gardens to maximize their profits. So what restricts apps from delivering contextually-driven, connected and unified mobile experiences is the hardware devices.

Devices allow customers to build applications within what is called a "sandbox" -- a self-contained piece of real estate within the device. Each sandbox can get data from the hardware from other apps. So the hardware essentially acts as the broker if app A wants data from app B. This is essential for micro-apps and so this approach works well in delivering engaging experiences limited to a single, small functional operation. But since these micro-apps are isolated, the experiences remain limited and restricted.

<Conclusion>

How can experiences be made pervasive

To make mobile computing ubiquitous, mobile app development will require a more user-centric and contextual application design based approach. By freeing software from hardware restrictions, developers can enhance the capabilities of mobile apps beyond isolated functional operations to include contextually-embedded experiences. If the software itself contains all of the context, it can access contextual information through web services rather than through restrictive hardware devices; while the context which only the mobile device provides - like geo coordinates, location, etc, can be retrieved from the device.

EDITED

How Hardware Tries to Monopolize Context & Why It Shouldn't
Hardware Vendors Should Not Limit Our Digital Experiences

<Summary>

Modern applications are increasingly focused on delivering richer mobile user experiences. Although context is key to success in this area, most apps lack context awareness due to hardware restrictions, which render them incapable of contextually driven computing.

<Introduction>

As smartphones become increasingly mainstream, mobile apps have gained unprecedented popularity. Today there is a plethora of mobile apps available to users. There are [millions of apps in leading app stores](#) and thousands of new ones are uploaded each day. Out of the countless new apps published every month, most go unnoticed, while some manage to gain popularity. Either way, the shelf life of mobile apps isn't very long. Mobile users tend to delete apps they no longer use every day. In fact, [ninety percent](#) of the apps that users download are uninstalled within a week. What's driving this? Could the limitations imposed by hardware be holding these apps back from gaining traction with users?

First, consider why users are so quick to uninstall apps. I can address this in part based on personal experience. I have only downloaded about a dozen apps on my phone, those that seemed incredibly useful to me. That's certainly less than the [global average](#) of about 25 downloads for smartphone users, which may be in part because I am not particularly fond of gaming or entertainment apps. However, I do find utility apps for bill payment, banking and ecommerce quite helpful. Still, I delete the ones I don't use very frequently, because I don't like seeing more than half a dozen apps cluttering my screen. I would keep them if they were useful, but unfortunately, I find them not be.

Context in Mobile Experiences Today

When it comes to making apps more useful, with a rich enough experience to justify their place on a mobile device, context is everything. Context awareness enables computers to determine, among other environmental factors, location, identity, activity and time and then react accordingly. By harvesting information from the user's immediate environment, and understanding the circumstances in which they are being used, context-aware devices become capable of implicitly responding to the user's needs in uniquely relevant ways—even to the point of anticipating them—all while blending into the user's immediate environment. Context awareness is what enables [ubiquitous computing](#), where computing goes beyond the traditional desktop to deliver relevant functionality anytime and anywhere irrespective of form factor, location and format.

On the contrary, apps available today operate within the peripheries of hardware vendors' walled gardens. The many apps appearing on our phone screens are so [isolated from each other](#) that they cannot deliver a cohesive user experience. For example, my Skype app does not know what I am doing on WhatsApp, and my Outlook app has no knowledge of my Hotmail and Gmail use. Although some of these apps offer highly useful and relevant experiences individually, as a whole they are incapable of offering truly coherent, synergistic and contextually rich functionality.

Why Apps Fail to Deliver Contextually Rich Experiences

Currently, using computers requires effort. The goal of pervasive computing should be to eliminate effort as much as possible, yet we currently expend effort where it is not needed, simply because sellers are interested in creating walled gardens to maximize their profits. Ultimately, what restricts apps from delivering contextually-driven, connected and unified mobile experiences is the hardware devices themselves.

Devices allow customers to build applications within what is called a "sandbox," a self-contained piece of real estate within the device. Each sandbox can get data from another app's sandbox

only through the hardware, so the hardware essentially acts as the broker if app A wants data from app B. This approach is essential for micro-apps, and it works well in delivering engaging experiences limited to a single, small functional operation. But because these micro-apps are isolated, the overall experiences remain limited.

<Conclusion>

Removing the Barriers

For mobile computing to meet its full potential, mobile app development will require a more user-centric and contextual approach to design. By freeing software from hardware restrictions, developers can enhance the capabilities of mobile apps beyond isolated functional operations to include fully contextual experiences based on a much broader range of circumstantial data. This is achievable if software is designed to contain all of the contextual data. Then this information can be accessed through web services rather than through restrictive hardware devices. This leaves only that information which the mobile device alone can provide, such as location and geo-coordinates, to be retrieved from the device's hardware. In this way, developers can avoid isolation and take their apps to next level, finally becoming fully integrated into the lives of their users.