ubuntu

Build revenue and reduce cost with Ubuntu for phones

OEMs and carriers are looking for a way to break iOS and Android's dominance of the mobile operating system market. Apple and Google gear their operating systems to benefit themselves and make it difficult for carriers and OEMs to differentiate themselves and generate value-added revenue streams from the devices they sell.

Pursuing customisation is impossible with iOS. With Android it quickly raises development and maintenance costs for OEMs and carriers. This then eats into the revenues that customisation generates.

Alternative OSs promise a third way to market, but OEMs and carriers are hesitant because they are worried about the potential costs and risks.

With Ubuntu OEMs and carriers can reduce the cost of development and maintenance through the operating system's clever architecture, make use of built in easy to action revenue generating opportunities, and offer a stunning experience to users.

OEMs and carriers can reduce costs as Ubuntu

- Eliminates fragmentation, creating a common image that's easier and cheaper to update.
- Gets a device to market more quickly, through a parallel and collaborative development cycle.
- Offers substantial opportunities to participate in the strategy and execution of the operating system.
- Offers various paths to bring existing apps to Ubuntu.

OEMs and carriers can grow their revenues as Ubuntu

- Offers the user highly discoverable content, prioritised by the carrier or OEM and surfaced naturally through stunning full-page scopes.
- Provides a customisable user interface that stands out in retail.
- Offers an high-end smartphone experience which works equally well for a first time user or a technology enthusiast.

The cost of fragmentation

Android uses a 'big-bang' development model and it creates a highly fragmented ecosystem which takes significant resources to maintain.

Fragmentation starts as soon as a new version of the OS is released to industry. Developed behind closed doors, silicon manufacturers need to add code to ensure it works with their

chipset. Qualcomm's Code Aurora project is an example where this is done well; other silicon manufacturers organise more loosely or push the responsibility onto the OEM.

And so version forking starts. OEMs and carriers must devote resources to maintaining each fragmented version - one for Qualcomm, one for MediaTek for example - as updates and new versions of the OS are released.

Many other responsibilities fall to industry. OEMs must also: produce the master image, integrate software from hardware and ISV partners, validate the image on hardware, maintain it, upstream their own changes, and industry has little feedback or say in the product roadmap.

Suddenly 'free' starts to look expensive.

Easy to deploy to devices

Ubuntu is easy to deploy, reducing the cost of getting a device to market.

It has already been ported to SoCs from several different manufacturers, and uses Google's Nexus family as reference devices (currently the LG Nexus 4 and Asus Nexus 7). The large community developing Ubuntu means that new devices are continually added to this list.[1]

Using the Linux kernel with Android additions means their BSPs are reusable. OEM and carrier engineers are already familiar with them, so tailoring them to work specifically on a device will incur no unusual costs.

Further up the stack, Ubuntu uniquely uses code from the existing stable Ubuntu release. This means that much of the middleware, like networking, multimedia, bluetooth, system utilities and internationalisation is fully mature and stable, reducing programme risk.

Easy, parallel development with Ubuntu.

Ubuntu helps industry deliver innovation to the market faster, and maintain it with less cost by taking a collaborative path to development with real code visibility.

The cost benefit for industry lies in two key areas: firstly, Canonical maintains a common image of the OS which eliminates fragmentation, and secondly Ubuntu's perpetually open development model enables industry involvement in the OS's roadmap.

[1] For the current list see: https://wiki.ubuntu.com/Touch/Device

Fragmentation eliminated

One core image, no forking. Canonical maintains a common core of the Ubuntu OS, which includes maintaining a core level of compatibility.

The cost of developing and maintaining silicon compatibility is removed from OEMs. Canonical is already working with the major silicon manufacturers and will ensure their chipsets are compatible with Ubuntu.

Hardware from partner OEMs keeps working with Ubuntu as their devices are included in Canonical's test system. Again, Android makes this an OEMs responsibility.

And a core group of applications will work seamlessly from the start as Canonical includes the integration of software from hardware and ISV partners.

Security updates will work on devices immediately without costly and time-intensive integration work. Canonical maintains security in the core image, enabling a direct roll out of updates. By comparison Google supplies a source code patch, and the integration, testing and distribution of it is the OEMs responsibility.

OEMs and carriers then develop a customisation image. It's separate from the core image and typically in the service layer. It holds their specific customisation of Ubuntu for their devices. Canonical provides consultancy services to enable OEMs to establish this customisation image and ensure it integrates with the core image.

A participative open source model

Innovation like NFC, Bluetooth 4LE and new types of camera get to market faster as Ubuntu includes industry input in the operating system's development.

Canonical shares the product roadmap with partner OEMs and carriers which gives them sight of the development agenda and a voice in shaping it through feedback forums .

Canonical will also assist in upstreaming changes into projects that are delivering to Ubuntu. This process is already underway as Canonical engages with carriers through the Carrier Advisory Group.

Carriers and OEMs look to bring surprising unique features to market and will not want to give away the identity of these by making their code public before the announcement of the finished feature. This can be achieved by artfully contributing generic code developments to the common core and keeping more specific code private in their customisation image.

Customisation points for industry built in

To compete with Google, OEMs and carriers must establish equivalent channels, but have to contend with Google Play's brand recognition and home screen placing.

Ubuntu has customisation points built in. The greeter, which is the first screen a user sees in a retail environment, can be colour matched to desired branding, there's real estate for carrier and OEM brand marks, and the notifications displayed here can suggest prioritised content.

Consumer research carried out by Canonical with target user groups revealed the greeter is distinctive and draws user's attention in retail.

Scopes create sophisticated engagement with industry content and services

Scopes are an intelligent, visually arresting and easy way for users to discover content and applications. Narrowing down what they want is easy as scopes present content visually, and navigation through it is fast and fun, with swipe and glide movements replacing tap and wait. Apps, music and videos each have a scope, and user searches will return results from the device and the web, including linked third party stores. For the user it is a seamless experience.

For Industry, scopes present an opportunity to customise their offering by adding new scopes and by prioritising content in a sensitive and refined way.

Seasonal campaigns or themed content can be surfaced via additional scopes. For instance if a carrier or OEM sponsors events, such as sports or festivals, they can easily and quickly create the relevant scope. Third parties and partners can be included, as scopes offer real estate for their branding.

Moreover, search results within scopes can be prioritised by the carrier or OEM, suggesting their content to the user. For instance, if a user searches for the film 'Iron Man 2' from the video scope, OEMs and carriers can prioritise a return from their preferred store in the top results. If the user chooses to purchase it, their billing information can be included and easily integrated into a payment back end.

Ubuntu: more open, lower cost: A multi-path app ecosystem

OEMs and carriers have existing applications which run on Android and will naturally want to bring these to Ubuntu. Historically, claims by other operating systems of automated portability have been optimistic.

The most valuable apps are usually the most integrated and complex which makes them difficult to port whilst maintaining performance and efficiency. Ubuntu's strategy is to work with developers to port existing high-value applications to Ubuntu and ensure they work effectively. Work on this has already started with a number of high-profile applications.

Reusing their web skills, developers can create apps with HTML5, Javascript and CSS, using Apache Cordova to integrate sensor and camera data. For more a more sophisticated native feel, QML is available to develop slick and striking apps easily, with engines in C++ or Go.

Whichever route developers choose, Ubuntu doesn't lock them into one technological path. It gives options to make an app integrate like a native app with as little cost as possible.

Conclusion

Carriers and OEMs stand at a junction; if they wish they can stay there.

They can live with the existing duopoly in the market; they have established ways of working with these options and so predictability exists by continuing to bring them to market.

But a new way exists, a way to differentiate themselves, increase their market share and break the duopoly, with a minimised risk and cost.

Ubuntu for smartphones offers a path to bring a desirable, sophisticated and different smartphone to market. It reduces cost in development and in maintenance, and offers easy-to-execute built in ways for carriers and OEMs to generate revenues in its beautiful interface from day one.

About Canonical

Canonical is the company that makes Ubuntu, together with a cast of thousands. They have teams in London, Boston, Montreal, Taipei and Shanghai to help industry bring Ubuntu devices to market. This can be easy, low cost and low risk. To find out more email Canonical at email@canonical.com.