

The industry has moved beyond **simple device fragmentation** to a more challenging fragmentation of the mobile market. This will not benefit any of the parties involved.

OPINION: PITY THE POOR DEVELOPER



▶ **ALLAN MACKINNON** is the founder, president, and chief technology officer of Everypoint, makers of Nemo, a mobile application development platform for Java-enabled feature phones. Allan's vision for Everypoint draws on his experience with complex systems, real-time data processing, and communications technology. He has filled pioneering roles at Palm, D. E. Shaw, and American Airlines. Allan holds a BS in Computer Science & Engineering from MIT and an MS in Operations Research from Georgia Tech.

▶ **HANDSET MANUFACTURERS** and mobile operators have started helping consumers leverage their powerful devices by launching mobile application stores. Through these device-specific or operator-specific stores, consumers can now download a wide variety of entertainment, news, and productivity applications. Combined with ongoing mobile device innovation, these new “app stores” seem to indicate that mobile application development is becoming increasingly streamlined and efficient.

Unfortunately, that is not the case.

The various device challenges can seem like an abstract concept to many in the industry, but the group that has felt the most pain is mobile application developers, who struggle with “device fragmentation” or the inability to write once and run anywhere. Now their livelihood is being further complicated by new application storefronts. Each app store launched adds complexity because applications often need to be rewritten and repackaged for each store. The process is not as simple as cut and paste. It requires many hours to port an application to a new store.

The industry has now moved

beyond “simple” device fragmentation to a more challenging and more general fragmentation of the mobile market.

DEFINING THE MARKET

A “perfect storm” of converging factors is driving a global opportunity for mobile application developers. First, after years of hardware and software upgrades, all mobile phones – not just smartphones – have become very capable devices. Second, as mobile data network speeds continue to improve, all users can access the applications they have seen their iPhone-toting friends enjoy. Third, affordable unlimited data plans are lowering cost barriers for mobile internet access.

According to IDC Research, there are more than 1 billion feature phones across the

“...there are numerous reports of developers spending over USD 30,000 to develop an application and then finding that any price above USD 0.99 **severely lowers** the total downloads, even with stellar reviews.”

globe, and that number continues to increase, with emerging markets expanding most rapidly. In contrast, there are just 100 million smartphones, mostly in the United States and Europe.

The availability of feature phones presents a tremendous opportunity for consumers to gain access to applications with rich graphics and real-time data connectivity. But finding these applications off-deck is challenging for inexperienced users. While there are websites that allow for off-deck downloads of applications, a non-technical user may have difficulty accessing them. Operators' on-deck downloads provide another way for consumers to access applications, but developers must navigate a complex landscape of approvals just to have their applications listed on these portals.

LOOKING BACK AT 2008:

THE PROBLEM EXPANDS

In 2008, significant milestones in the mobile industry led to further and deeper fragmentation of the market:

- ▶ Increased sales of iPhone owing to launch — and overnight success — of iPhone App Store
- ▶ Release of first Android (Google) phone



- ▶ Market leader Symbian's decision to go open source
- ▶ Nokia's launch of Ovi and closure of Mosh
- ▶ Palm's relaunch with Web OS
- ▶ Research In Motion's move into the consumer market (backed up by the 2009 launch of BlackBerry App World)
- ▶ Microsoft's new Marketplace for Mobile
- ▶ Orange's launch of Orange Application Shop
- ▶ T-Mobile USA's decision to build an app store.

Scores of developers invested resources in developing for the iPhone but met with limited success. This is because the approval process for the App Store allows Apple to reject applications that compete with its own products and because free applications are driving down prices.

For example, there are numerous reports of develop-

ers spending over USD 30,000 to develop an application and then finding that any price above USD 0.99 severely lowers the total downloads, even with stellar reviews.

Just within the smartphone market, iPhone development challenges and the launch or announcement of about 10 new app stores in 12 months has fueled the conversation about mobile fragmentation. Developers have forecast that 2009 will see a worsening of this problem.

And smartphones are just 15 percent of the global market. What about the feature phones?

THE FEATURE PHONE LANDSCAPE

The billion-plus feature phones shipped each year present a compelling opportunity for mobile application developers. However, the feature phone market has been underserved

to date. There is no one-stop application store for "non-smartphones." Developers have longed to directly exploit this market but have been presented with several obstacles, particularly these three:

- ▶ Vast device diversity
- ▶ Difficulty leveraging both current 2.5G and higher-speed data networks
- ▶ Lack of an attractive discovery and distribution model.

Device fragmentation among feature phones presents developers with their most expensive challenge; one that is unlikely to get better soon and may actually get worse. The historical drivers of mobile device fragmentation include more than 30 different screen resolutions, a dozen underlying operating systems, weak standards compliance, and many hardware configurations. Add to that different firmware revi-

“It is clear that today’s **market fragmentation** will not benefit any of the parties involved.”

► sions, language support, and operator branding and there are literally thousands of combinations for which applications must be developed and tested before developers can make them public – a daunting and expensive task.

Data-hungry applications and websites that run well on a personal computer rarely translate into great mobile experiences. Slower data networks that still dominate most of the world have limited bandwidth and demand that developers make every available byte count. New 3G networks are clearly faster but can be expen-

sive, and mobile operators are already concerned about growing demand for bandwidth and backhaul.

Some mobile application developers have solved the first two problems for feature phones only to realize that consumers cannot find their applications. Developers could directly negotiate to be on an operator’s deck or work through an aggregator, but that severely cuts into profit margins. Apple, with its big-brand power, was the first to significantly improve and simplify application discovery and distribution, but only for iPhones.

Even with the other smartphone makers trying to duplicate Apple’s success, 85 percent of the market is left without a solution.

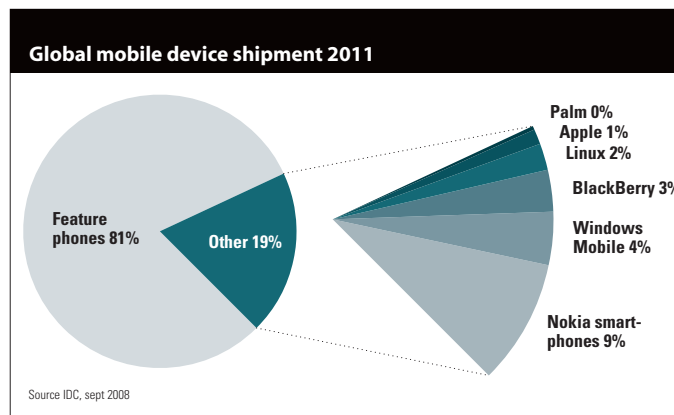
THERE IS HOPE

Fortunately, mobile fragmentation challenges can be addressed. Device differences can be “defragmented” with a platform that includes a new mobile programming model, supporting infrastructure services, and even a downloadable runtime client for some devices.

The mobile programming model must embrace the reality that device capabilities will vary, wireless networks aren’t always available, and bandwidth and battery life are precious. This reality drives the need for a “cloud” of mobile network services that supports the new mobile programming model. The cloud services should support real-time notification, push and synchronization of content to mobile devices, and easy access to traditional internet web services, which guarantee that wireless networks are always used efficiently.

Developers need to move close to a truly “write once, run almost anywhere” solution with a rich graphic and media presentation layer for delivering applications that look great on an array of devices. Applications also need direct access to device features such as the camera and GPS. Furthermore, the client should have a security model that supports dynamic loading of code. Feature phones without these capabilities may require a runtime client to augment the phone.

Finally, the platform should support a cross-device and cross-operator application store or catalog that supports



Operating systems market share, worldwide

Manufacturer	Feb 09	Aug 08	6 months change
1 Symbian	43%	64%	-21%
2 iPhone OS	33%	4%	+29%
3 RIM	10%	11%	-1%
4 Windows Mobile	7%	13%	-6%
5 Palm	3%	6%	-3%

Source: AdMob Mobile Metrics Report, February 2009

Top worldwide smartphones

Rank	Handset models	Share of smartphone traffic
1 Apple	iPhone	33.0%
2 Nokia	N70	7.1%
3 RIM	BlackBerry 8300	4.2%
4 Nokia	N80	3.5%
5 Nokia	N73	3.4%
6 Nokia	N95	3.3%
7 RIM	BlackBerry 8100	3.2%
8 Nokia	6600	2.8%
9 Palm	Centro	2.6%
10 Nokia	6120c	2.5%

Source: AdMob Mobile Metrics Report, February 2009



free, paid, advertising-based, and enterprise-revenue models. The same notification and synchronization services used to update content can be used to guarantee that both the catalog and applications are always up to date. Developers must be able to manage rights and distribution of their applications, as well as receive detailed usage analytics, just like with web applications.

Thanks in part to the success of the iPhone App Store, mobile applications are becoming increasingly important to hardware manufacturers, mobile operators, and consumers. Several manufacturers and

operators have created their own app stores and hope to encourage talented developers to code for their proprietary platforms. Developers are then left to either bet on one platform or attempt to juggle development for multiple platforms, a dilemma which further frustrates and alienates the developer community by throwing up barriers to profitability and success.

Writing quality applications takes time and money, and developers want to expose their applications to the largest number of consumers. The industry should band together to create a more streamlined

process, facilitating a more efficient development and delivery system for all mobile phones. It is clear that today's market fragmentation will not benefit any of the parties involved. With a more consistent system in place, more and better applications will be developed for consumers. ●