

In Search of the Silver Bullet: Killer App or Killer Business Model?

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1. Introduction

A “silver bullet” is a simple, straightforward and extremely effective solution for a prevailing difficult problem. In the mobile industry today, everyone seems to be searching for that elusive “silver bullet.”

Why? And what seems to be the problem?

At the risk of being overly simplistic and somewhat controversial, it is our opinion that the current mobile market conundrum is not unique to the economic downturn. It is, rather, an age-old challenge for as long as there has been commerce. After all, what is the true reason for a business, any business, to exist? Is it to sell products? Is it to sign up customers? Granted, selling products or signing up users must be a company’s key revenue-generating objective; but is it the most important one? Let us first agree on one principle: *The single purpose for a business to exist in the market is to make a profit!*

Herein rests the current dilemma in the mobile industry. Nowadays, everyone and his brother are in earnest search for the Silver Bullet – a means by which to lead them into the Land of Riches and Profits!

Back in the early years when the mobile industry was just starting to grow, it was a lucrative “gold mine” for many, particularly the early participants. The huge market potentials were clear for all to see! Anyone who could produce a decent mobile product seemed to be making money. Operators, with control over the entire supply chain, were the ones who made very good money. Ah, those were the days!

At the dawn of this new decade, however, the market landscape has changed dramatically. In our era

of commoditization, openness and personalization, the mobile industry is a battleground plagued by saturation, severe price/cost pressure and eroding profit margins. The quest for differentiation and higher value to vie for consumer adoption is a treacherous, never-ending cycle. It’s no wonder that the search for the silver bullet is on top of every mobile company CEO’s “To Do” list. Ironically, the collective search these days seems to fall neatly into one or both of two areas: *Killer App and Killer Business Model*.

The intent of this article is strictly to present, from an objective point of view, the underlying considerations when searching for the Silver Bullet. We make no attempt in offering any opinion as to whether Killer App or Killer Model represents the *right* Silver Bullet.

Software and Applications

Before we discuss Killer Apps, let us first review a few basic things about software. While this might seem like an elementary software tutorial, however, the need for these preliminary clarifications in relation to finding the Killer App will hopefully become clear to you.

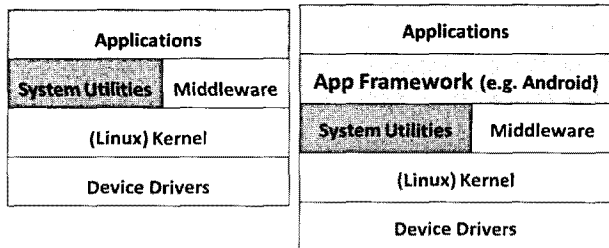
Different Types of Software

Generally speaking, computing software (i.e. software that runs on any computing device: PCs, netbooks, mobile phones, etc.) are classified into three main types, namely, *systems software, middleware and utilities, and applications*.

Systems software is comprised of device drivers, operating system kernel and other software compo-

nents which abstract low-level hardware features. *Middleware and utilities* are designed to make application development easier by abstracting common programming details. Applications software, a key focus of this discussion, is designed to help users to perform certain specific tasks.

In today's contemporary system architecture, often there is another software layer straddling between applications and middleware, commonly referred to as an *application framework*. The purpose of an application framework is to provide a standard application "platform" to ensure that applications written in adherence to the standard "rules" of the platform are 100% compatible among devices that have the same application framework. Android is a perfect example. An application based on the Android App Framework for Device A *will* also run on Device B with the same Android App Framework (unless some modifications were introduced by the application).



Classifying Applications by Design

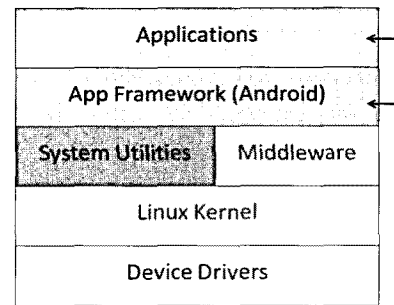
There are many different types and categories of applications; too numerous to name, in fact. In the context of this discussion, let us classify applications by how they are designed, specifically *by how they interact with the various layers of the systems software stack*.

1. Top-level Interaction Only

Applications in this class interact only with the application framework but with no other layers of the stack. These applications are often referred to as "off-deck apps" in that they are not embedded in the complete stack and can be downloaded into the device over the Internet.

This type of applications is typically developed by independent, third-party software developers who rely mostly on selling their applications over the Internet.

Applications listed in Apple's iPhone App Store and those posted on the Android Market are prime examples of this class of apps.

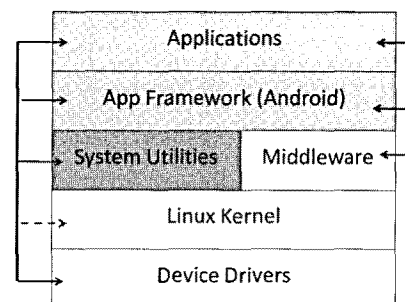


Within this class of applications, there is a special type called "client applications" or simply "clients". Client applications are commonly either embedded into a device, or available for download from some web portal or app stores. Clients are typically used to initiate or activate the access of a remote service that runs on another computing system, known as a server, by way of a network.

2. Multi-layer Interactions

This class of applications is more complex in that the development requires direct interactions with several or all layers of the device's system stack. The complicated interactions involved in this class of applications necessitates that it be integrated into the device and cannot be downloaded remotely. These applications are sometimes referred to as "on-deck apps".

An example of this is an online service application that interacts both with the application framework as well as with the middleware layer. A typical navigation app running on one of the earlier Android releases would most likely have involved interactions with all layers.



Client applications can be either “on” or “off” deck. Clients are typically free, but activating and/or accessing their associated remote services are not. Services are charged either on a per-use basis or based on a yearly/monthly subscription fee. However, today we find many free and popular client/server-based online services such as Gmail, Windows Live Hotmail, MediaMax, Xdrive, etc.

“On Deck” applications are embedded into the device. Since they are not downloadable over the Internet, these applications cannot be marketed via app stores. Typically they are offered to a device vendor to be integrated into the vendors’ end device on an OEM arrangement. The application needs to be customized, integrated and tested specifically for each specific end device, most likely by the party who developed the application.

So, What Makes an App a Killer?

To continue with the next step in our discussion, we need to define what qualifies an application to be called a Killer App. We suggest the following definitions:

1. *A Killer App is an application that offers such value, usefulness and emotional appeal that becomes one of the key reasons, if not the reason, why users buy the specific device on which the app runs.*

One of the first examples of a Killer App is the *VisiCalc* spreadsheet on the Apple II computer. The Apple II languished for a short time in the market when it was introduced in 1993 as an affordable general-purpose computer for the masses. It didn’t take off until *VisiCalc* on Apple II was discovered by people in the finance industry, particularly the bond traders and small company CFO’s who used to spend hours gridding out financial reports manually. *VisiCalc* became the actual reason – the key “pull” – for people to buy the Apple II. Similarly, sales of IBM’s PC had been slow until the Lotus 1-2-3 was made available. Apple’s Macintosh suffered the same slow adoption until Adobe’s *PostScript* gave it the needed “niche appeal” to graphic designers

and people in the desktop publishing business. In the mobile phone arena, we could cite some similar examples. During the early to mid-1990s, Nokia’s candy-bar phones were very popular because of the simple, easy-to-use user interface. The Killer App of the iPhone, by all measures the most successful Smartphone to date, is its beautiful, aesthetic, intuitive and maneuverable graphical user interface (GUI).

2. *An application can be qualified as a Killer App when it becomes a “standard” or highly popular tool that consumers use to perform one or more specific “must have” functions.*

In 1994, Netscape launched the market’s first web browser Navigator. The browser quickly helped turn the Internet from something of academic interest to a mass-market phenomenon. Although Navigator had almost vanished in the market after having been overtaken by Microsoft’s Internet Explorer, nevertheless, the Navigator should be given the honor of being the first Killer App for the Internet. The browser today is fully capable of effectively performing tasks such as making calls, sending email, downloading and streaming music, photos, video, and much more. Browsers as a category, remains Internet’s Killer App.

Contrary to general understanding, Google did not invent the search engine technology. The work actually started back in the early 1990s in several academic and research institutions. Around 1993, there were already several companies competing in the market. Among the more popular ones were Excite, Infoseek, AltaVista, Lycos and Yahoo! Unfortunately many search engine companies got caught up in the dot-com bubble that peaked in 1999 and ended in 2001.

At the other end of the spectrum, despite the bust, Google’s search engine rose to prominence. It achieved much better search results with an innovative algorithm of ranking web pages based on the number of web sites are linked with a particular web page. The notion is that the more pages are linked to other pages, they would be considered as more “desirable” by users. Google

also developed a simple interface that requires minimal user navigation. By 2009, Google's search rose to over 65% of the total worldwide market share.

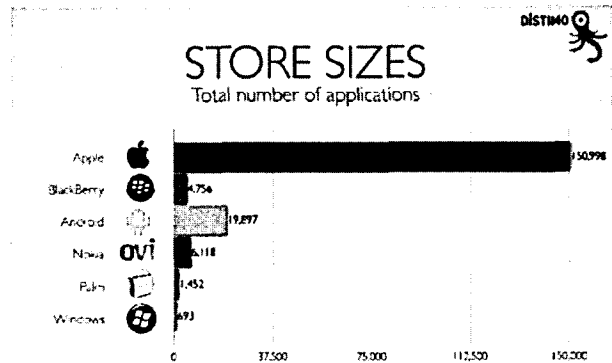
Under this definition of being a standard tool for users to perform "must have" functions, both the browser and search engine represent excellent examples of Killer Apps.

A Few Words about Apple's App Store

When Steve Jobs opened Apple's App Store during the summer of 2008, no one expected it to be a market-changing event, not even Steve Jobs. There were many skeptics: *too expensive, too easily pirated*. But the astounding early success of the iPhone began to attract many, many software developers all scrambling to get their applications on Apple's App Store. By the end of 2009, there were 100,000 apps posted, and the number of Apple's App Store downloads passed the 1.5 billion mark!

The App Store's staggering success has led nearly every maker of a smartphone operating system – Nokia, Google, and Microsoft – to copy Apple's example. So far, however, none has become its Silver Bullet. A study by the market researchers at AdMob indicates that the Android Market, running at a distant second, is far less profitable for software developers than Apple's App Store. While half of iPhone owners buy at least one application per month, only 19% of Android users do the same. With Android user population estimated at 3 million compared to 26.4 million iPhone users, AdMob estimates around \$5 million Android applications sold in a month, compared to \$125 million from iPhone applications. While that amount is no small change, it is minuscule for Apple. But that is not the point. *The point is not about the performance of the iPhone App Store, but that the major purpose of the App Store is to sell more iPhones. We would even argue that one of the Killer Apps for the iPhone is the App Store!*

The bottom line is, while app stores might serve some purpose to a device vendor or a service provider, but without a large enough addressable base, it would be difficult to attract the interest of both application developers as well as users.



What's Up with Those iPhone Apps in Apple's App Store?

Let's take a look at the current 150,000 iPhone applications posted in Apple's iPhone App Store. Do many developers of those apps make money? Are there any that could be considered a Killer App?

Jack Gold, a market analyst at J Gold Associates, recently said, *"It (the App Store) is a great thing for Apple, and has established a whole ecosystem around the iPhone, but I'm not sure how much money the developers selling applications on it are making."*

Indeed, this is an important aspect about selling applications via an app store, even one as successful as Apple's. A developer with a clever idea can perhaps get an iPhone app developed in a cottage-industry environment, but at the end of the day, it is still Apple that benefits most from his/her creative work. According to a July 2009 report by the online group of The Guardian, a UK newspaper, *90% of iPhone apps don't make profits for their developers.*

Does Killer App Spell Killer Money-Maker?

Does being a Killer App guarantee profitability? By all measures, when a Killer App becomes a "standard" consumer tool to perform a specific function, one would expect it to be a Killer Money-Maker as well. Ah, but such is not always the case!

Let's take a close look at Skype. Skype started its innovative idea in 1993 to enable users to make calls over the Internet either free or inexpensively in comparison to calling over landlines or mobile phones. People flocked to download Skype to their PCs and

laptops, the number of Skype users skyrocketed. When eBay paid \$2.6 billion to buy Skype in 1995, Skype had revenue of about \$60 million and losing money. By the end of 2007, Skype's user base had reached over 220 million! By any measure, Skype was a Killer App. But it still was not able to turn a profit. When Skype's CEO Niklas Zennstrom stepped down in 2007, he made the following statement: "*Some people may want to monetize faster, but the key is to figure out what is the right speed of monetization. If you act too aggressively, there is a real risk you will lose the huge active user base.*" (Source: Thomas Crampton Blog, October 1, 2007)

While we take issue with Mr. Zennstrom's logic in his defense of non-profitability because of not wanting to "act too aggressively," however, his statement could well serve as a caution to those who are searching for the Silver Bullet. *After all, a Silver Bullet is not a means to only garner a large base of users quickly, but also to monetize from it to turn a healthy profit.*

And now we have come to the second key part of our discussion. Let us turn to look at the other side of the Silver Bullet, so to speak.

About Business Models

First, we need to re-iterate that we are not referring to sales strategy here. Sales strategy defines how a product or service is to be delivered to the target customers. It is not the business model itself.

A business model is a framework that explicitly defines how a business operates in the market in order to generate a profit. A business model typically involves:

- A products (tangible or intangible), or a service, or even a marketable idea;
- A corresponding cost structure; and
- Sales and marketing strategy

There are as many different types of business models as there are corresponding products. However, within the context of this article, it is our intention to focus only on the models that are relevant to the mobile industry today. We will highlight two of the

most talked-about, emulated, and deployed models: *Subscription Business Model, and Network Effects Model.*

The Subscription Model

Under this business model, a company aims to make a profit by offering its products or services to its customers for use via a signed subscription agreement. In return, the customers pay the company either a monthly or yearly subscription fee, or on a price-per-use basis.

This business model is the oldest and the most familiar one to us consumers. This model has been deployed for as long as the existence of the telephone itself. Many of us today are still paying a monthly fee for a landline phone service in our homes. If you have a smartphone, chances are you also have a subscription contract with your mobile service provider for both voice and data services.

In days of yore when carriers had total control of the communications infrastructure, this model was their Killer Business Model. After all, they owned everything – the technology, the communication lines and even the handsets. The value they brought forth was absolute. And with little or no competition, they also "owned" their customers.

In recent years, under the mobile culture of openness and intense competition, air began to leak from carriers' profitability bubble. Often their value has been relegated to serving as inexpensive "dumb" pipes! To stop the leaking profits, mobile operators have been "bulking up" via mergers and buyouts. In addition, they are busily seeking new service offerings viewed to be "valuable" enough for users to pay for them.

Unfortunately, traditional operators are no longer the only mobile service providers. Other companies are entering the service business with their "niche" but attractive product and/or services, as an adjunct to their primary business. For example, Apple is offering the MobileMe service for \$99 per year for managing personal information over the air, pushing email, contacts, and calendar events to iPhone, iPads, Mac and PC in order to stay in sync. Apple is not a

mobile operator per se, but they are offering this unique service to consumers by “piggybacking” on the operator’s service over its “pipe.” Although the operator may benefit from the consumers’ need and increased usage of data services, ultimately the bulk of the benefits and profits go back to Apple.

While the subscription model remains current and will continue to be the primary business model deployed by mobile operators, there exists the urgency and intensity for them to tune and refine their offerings and strategic business initiatives.

The Network Effects Model

A good illustration of network effects is by way of the phone system. If only one person has a phone, it is of no use to that person. If that person has a friend who also has a phone, it is still only useful to the two of them. But the more people they know who own a phone, the more useful it becomes. Thus is the theory of network effects.

A Network Effects Business Model involves offering a product or service whose value increases as more and more others own that same product or service. (This theory is also applied in “the more we sell, the lower the cost” model.)

If we look at social- and professional-networking companies like Facebook, YouTube, Twitter and LinkedIn, it is obvious that their networks need to have a large base of people before people can see the real value. Would you be interested in joining a network, even if it is free, if it only had several hundred or a thousand users in the network?

“Free for all” is a model that most people-networking companies practice today. By offering a product or service at no charge, the theory is that many people will use it thereby a network of users is formed – the larger the network, the greater the network effects, the higher the implied value of the network.

Within the Network Effects Business Model, there are two different branches:

1. “Free Now, Charge Later”

A company practicing this branch of Network Effects Model gives away its product or service free upfront in order to grow its network population quickly. At

a certain point when the company believes that a critical mass has been reached and the intrinsic value of its network has been established, it begins to charge a fee, or offer a “premium” version with additional enhanced features and functions.

The challenge with this model is threefold: (a) Turning something from being free to a paid offering often antagonize existing users, causing some, or even many, to drop off and thus devaluing the network effects; (2) Unless the product or service carries enough “stickiness,” many users will refuse to pick up the charged content; (3) Giving product or service away for free to build a viable network costs a lot of time and money. Unless a company has strong financial backing, this practice is more a Killer than a Killer Business Model. Many Internet companies have perished in the recent years from lack of financial sustaining power.

Let’s take another look at Skype again. While it had an attractive proposition for free Internet calls, and even with its revenue stream for calls to non-Skype phones (the “premium” option), it simply was not enough to surpass the total costs of the service to reach profitability. Had the eBay acquisition not occurred, it was highly doubtful that Skype could have survived as an independent company in the long run. Even with eBay’s strong financial and market backing, Skype was still generating only a reported \$550 million per year in late 2009, yet not enough to cover the costs. Some financial analysis estimates that it costs Skype up to \$45 to acquire each user while generating only about \$10 per user each year!

2. “Free, Courtesy of Advertisers”

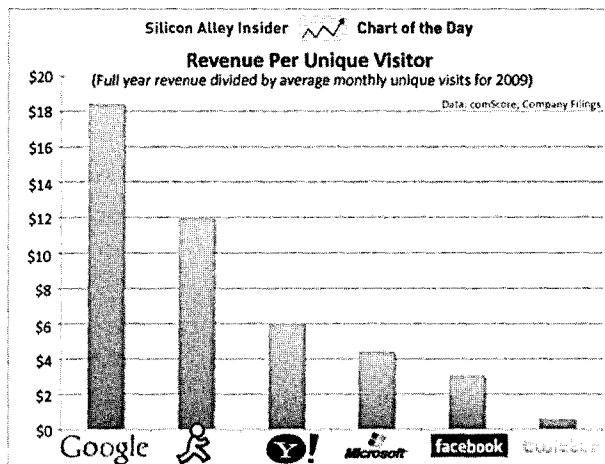
This practice is generally referred to as the Advertising Model. A company builds a vast network over time by offering its product or service to users perpetually free of charge. Because of the value of the network effects it created, advertisers are attracted to pay a fee to the company in exchange for the “opportunity” to advertise their merchandise. The company generates its revenue purely from advertisers with rates determined by the amount of “hits” or visits that the advertisers received.

Few would argue that this business model has been

tuned to near-perfection by Google. Over the years, Google has turned this practice into an absolute money-printing, profitability-churning machine! Google started with its free search service, and then quickly added other premium offerings almost all free of charge, such as Google Map, Google Earth, Gmail, Google Desktop, YouTube, and many more. The more products Google add, the more dominant the network effects it generates, the higher value it can place on its advertising scheme.

Take a look at the following analysis of the U.S. search marketplace from comSource, Inc., a market research group in the U.S. *Google's total search market share in the U.S. from all Google sites including YouTube, is an astounding 65.7% in December 2009.* It is perhaps not a stretch to say that the ratio of Google's network effects in relation to others is in direct proportion to its market share.

	Nov. 2009	Dec. 2009
Total Search	100%	100%
Google Sites	65.5%	65.7%
Yahoo! Sites	17.5%	17.3%
Microsoft Sites	10.3%	10.7%
Ask Network	3.8%	3.7%
AOL LLC Network	2.8%	2.6%



It is apparent that Google has found its Supreme Silver Bullet. Not only has Google turned search into a Killer App, it has successfully developed a corresponding Killer Business Model to deliver profitability consistently year after year.

A Winner's Edge

Watching Google's phenomenal success, it is not surprising to see companies jumping on the Google Bandwagon, emulating Google's "paid by advertisers" model. Most notably among these companies, and also most promising, are Facebook, Twitter and YouTube (since acquired by Google). There are many others also attempting to cash in on the market rush. Unfortunately many of them will fail along the way.

Why? What is the edge behind the winners' success?

Take the case of Apple versus Microsoft. The glaring difference between these two is this: Microsoft tends to *enter established markets* and gradually take them over by sheer brute force; Apple, on the other hand, *creates new niches* with personal and emotional user appeal, dominating them from the get-go, and then shows the users what they should want next. While their approaches are different, both Apple and Microsoft understand that the faster market dominance is established, the more difficult it would be for others to catch up.

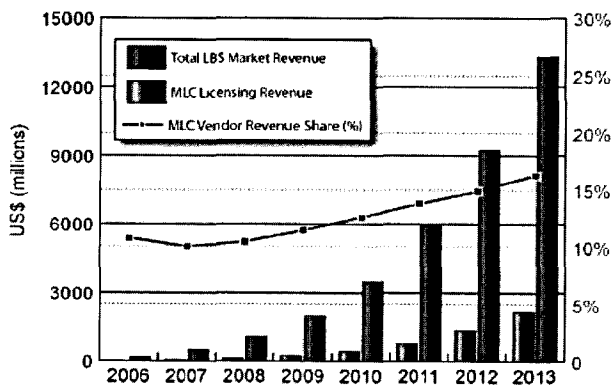
Now let's look at Google versus Yahoo! Yahoo! actually entered the search market before Google. Yet within a short time, Google began to leapfrog Yahoo!. Today, Google holds a robust 65.7% share of the search market versus Yahoo!'s 17.3%. Why the huge gap? From the get-go, Google gave the user a much more satisfying experience - the user interface was simple, easy to navigate and visually "cleaner" without clutter. At the same time, Google continues to fine tune its search algorithms to make the search faster and deliver more accurate results. Google understood the theory of dominant network effects and quickly defined a tiered advertising price scheme - a Killer Business Model - alongside its Killer Search App. Once the Google network effects started to steamroll over the Internet, Yahoo! had no chance but to watch its market share continue to erode. And the rest, as they say, is history.

Therefore, it would behoove Internet companies working under the Network Effects Business Model to remember this: (a) Even with a Killer App, with-

out a viable accompanying business model from the start, profitability is but a dream; (b) The speed of increasing network effects is often directly proportionate to one's market share; and so is the costs of building the network; and (c) Unable to demonstrate visible network effects is akin to a death sentence.

The Trend du Jour

The loud market buzz in the mobile industry currently is location-based services (LBS) and location-based apps. Spurred by the impressive network effects generated by Facebook, Twitter and YouTube, combined with the popularity of GPS-enabled touch screen smartphones, a large number of off-deck LBS apps are available for a one-off fee on smartphones. A recent report from ABI Research indicates that LBS revenues will grow from \$1.7 billion in 2008 to \$2.6 billion in 2009, and worldwide LBS revenue is expected to surpass \$14 billion by 2014. Monthly License Charge (MLC) revenue will also grow.



Source: ABI Research

A quick scan of the top-tier venture capital firms in the U.S. alone indicates that almost all have LBS-related startup companies in their investment portfolio. The most popular LBS applications seem to fall into several categories: *Navigation*, *Enterprise*, *Family Tracking (children and elderly)*, *Information and POI (points of interests)*, *Friend Finder (link to popular social-networking sites)*, *Public Safety (emergency calls and alerts)*.

It is our belief that applications that can actually improve or change our way of living or smooth out real-life issues stand a much better chance of becoming Killer Apps. And some LBS applications could potentially fit this bill. The good news is, the LBS market is just emerging and the potentials are rather substantial. Mobile operators seem to all be committed to offering location-based services. But the not so good news is, the field is already rather crowded and the biggest portal companies -- Google, Yahoo!, AOL, and Microsoft -- are also planning to play. How will it all play out? Only time will tell; but the upcoming 18-24 months promise to be most exciting indeed.

A Few Last Words

A Silver Bullet is a precise projectile -- Killer App in alignment with Killer Business Model -- that consistently hits profitability targets! A Silver Bullet is not found by search, but developed over time with intelligence, patience, \$\$\$\$, and yes, luck!

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