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Android from Planet Google to Save Mobile Universe

The Bottom Line:	As a comprehensive open source stack, Google's Android is a well-positioned remedy for the underserved promise of accelerated mobile service innovation.
Key Concepts:	Mobile internet, mobile operator strategies, mobile software
Who Should Read:	CMO, CTO, chief strategy officer

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Google Reveals its Broader Mobile Strategy

The November 5, 2007, announcement comes in the context of a broad alliance of mobile operators, OEMs, ISVs, and other core hardware and software vendors in support of Google's Apache 2 open source "Android" software platform.

Android is well positioned as an apolitical remedy for long-standing barriers to innovation in the mobile universe. Android will become a gravitational epicenter of value creation for multiple value chain elements in the Open Handset Alliance (see Exhibit 1) if:

- Performance expectations are met
- Operators are serious about embracing the platform
- Vendors with scale such as Motorola, LG, and Samsung deliver in volume and embrace the platform as strategic to their portfolios

Exhibit 1.
Partial Listing of Open Handset Alliance Participants

Operators	OEMs	ISVs	Core Technology Vendors
• China Mobile • KDDI • NTT DoCoMo • T-Mobile USA • T-Mobile Germany • Telefonica (including O2) • Telecom Italia • Sprint	• LG • Motorola • HTC • Samsung	• Nuance • Packet Video • Sonic • eBay • The Astonishing Tribe	• Wind River • QUALCOMM • Broadcom • Intel • Texas Instruments

Source: Yankee Group, 2007

Event Analysis

It's the Business Model. No G-Phone, No Surprises

Android is in line with Yankee Group's expectations of a logical software-platform and ecosystem-centric expansion strategy for Google. The notion of a "G-Phone" makes good blog fodder, but hardware entry was never considered a likely move.

Taken alone, there is nothing fundamentally unique or new about the Alliance or the Android platform. The former is reminiscent of other structures such as the Open Mobile Terminal Platform (OMTP) initiative, Mobile Services Architecture (MSA), and several Linux-oriented initiatives. The latter, of course, seeks open, robust, scalable client software that creates a futureproof foundation for current and next-generation mobile experiences. It consists of an optimized, best-of-breed, open applications framework, middleware, and OS layer tightly integrated with leading chipset architectures and, presumably, supported by a robust software development kit.

If that sounds familiar, it's the holy grail of mobile platforms dear to incumbent vendors including giants such as Microsoft, Symbian, Sun, QUALCOMM, Nokia and Macromedia. A common characteristic and tragic flaw of today's mainstream solutions has been their association with competitive agendas of value chain participants. Android is free, and a means to an end for extending Google's core business proposition—organizing the world's information (and monetizing it with advertisements). There's no hardware, network, DRM, IPR or content agenda, and no history, real or perceived, of monopolistic behavior.

Impact Analysis

The global mobile industry will benefit from common underlying mobile software architectures that deliver:

- Robust, scalable APIs and source code
- Low hardware and software cost, or at least the ability to scale performance to low-cost architectures
- High performance via tight integration between complex hardware and software interfaces
- Ease of third-party application integration via sophisticated, current toolsets (SDKs)

This is hardly new science.

- Operators recognize the need for common platforms for rapid delivery of new services.
- OEMs need look no further than Nokia/Symbian to recognize the scale, innovation, time-to-market and other economic benefits.
- ISVs value application portability, volume and ease of development.
- Silicon vendors have long sought association further up the software stack as a means of securing demand for their chipsets (e.g., QUALCOMM's BREW).

This is currently available, but ecosystem orientation, operator acceptance and scale opportunity have not aligned, as we show in Exhibit 2.

As a comprehensive open source stack, Android is a well-positioned remedy for the underserved promise of accelerated mobile service innovation. But a number of conditions out of Google's control must be met to realize this.

The Holy Grail of Openness, Sort Of

The open source school of thought implies that differentiation and competitive advantage come from innovation on top of the underlying platform rather than the platform itself. The robustness and scalability of the platform is secured by the community's stewardship, and open access to a central repository of updated code. Beyond this, a strong third-party development environment and software development kit (SDK) are critical to attracting innovation.

"Open" is an invariably subjective term. Symbian and Microsoft can claim a degree of openness for their mobile platforms, for example, but ultimate control of API access and source code remains with a single entity. On the contrary, as Google has pointed out, there's nothing keeping any of the alliance members from using Android to build a Yahoo! Go phone.

Motorola has had some success delivering high-volume Linux-based devices such as the Ming and RAZR II to market. But mobile Linux initiatives have failed to scale on the basis of attractiveness to third-party developers; it's been supply-push with the development focus in Java ME or other application framework components. Importantly, Android includes almost the entirety of the applications-related software stack, less key technical pieces such as telephony protocol stacks, which are left to silicon vendors. Android bundles critical components such as a Linux kernel from Wind River, various optimized graphics engines, codecs, notification software, a "clean room" JVM implementation, and the KHTML open source browser. The latter forms the basis of Apple's Safari and Nokia's S60 offerings.

Exhibit 2.
Mobile Platform Participants' Market Orientation

Platform/Vendor	Mobile Ecosystem Orientation	Operator Acceptance	Scale Opportunity
Microsoft	Favorable	Neutral	Neutral
Symbian	Favorable	Favorable	Favorable
Access	Preclusive	Neutral	Neutral
RIM	Favorable	Favorable	Neutral
Apple	Neutral	Neutral	Neutral
Openwave	Preclusive	Neutral	Neutral
TTPCom (MOT)	Preclusive	Neutral	Neutral
Nokia	Favorable	Neutral	Favorable
OpenPlug	Preclusive	Neutral	Preclusive
ZenZui	Preclusive	Neutral	Preclusive
Action Engine	Neutral	Neutral	Neutral
Cibenix	Preclusive	Neutral	Preclusive
a la Mobile	Favorable	Neutral	Preclusive
SKY MobileMedia	Preclusive	Neutral	Neutral
Trollech	Favorable	Neutral	Preclusive
SurfKitchen	Preclusive	Neutral	Neutral
Google	Favorable	Favorable	Favorable
QUALCOMM	Favorable	Neutral	Preclusive
NTT DoCoMo	Favorable	Favorable	Preclusive
SEMC (UIQ)	Favorable	Favorable	Neutral
Sun (Java FX)	Favorable	Neutral	Neutral
Macromedia	Favorable	Favorable	Favorable
Opera	Preclusive	Favorable	Neutral
Mentor Graphics	Preclusive	Neutral	Favorable

Favorable Neutral Preclusive

Source: Yankee Group, 2007

If it proves sufficient in practice, Android's comprehensive architecture reflects the maturation of core mobile application software elements. This will not come as welcome news to best-of-breed client software solution providers such as Access, Openwave, Opera, and a host of others offering what have become "tick-box" components. Android may also damage the opportunity for application and user-interface innovators. It's unclear, for example, how Macromedia's Flash Lite or QUALCOMM's uiOne (Trigenix) may be integrated onto the platform.

This software maturation is comparable to that in hardware where chipset performance and telephony stack ownership are losing importance as differentiators. This is evidenced by sweeping 2G silicon vendor consolidation and, in part, Nokia's recent divestiture from its long-standing 2G and 3G chipset development programs.

Bottom Line

As a comprehensive open source stack, Android is a well-positioned remedy for the underserved promise of accelerated mobile service innovation. OEM and operator dispositions toward the platform, largely out of Google's control, will determine its efficacy.

Winners

- Alliance Operators
  - If it performs as planned, Android offers all the benefits of a robust, scalable, standard underlying software platform without the political and business model encumbrances of incumbent solutions. This is not to say that Google has no agenda. It's simply not one that obviously runs counter to operator interests or in whose revenue stream the operators have no place.
  - For operators and OEMs, Android also affords leverage against other camps such as Microsoft, Nokia and Symbian.
  - Importantly, Android's inclusion of the entire application-oriented software stack in an open source model mitigates the fragmentation threat that has beset other offerings, notably Java ME and BREW. There are costs for Android, specifically related to processing and memory requirements, though these costs should be in line with mainstream feature and smart phones.
- HTC
  - HTC and Windows Mobile have been silently synonymous since the latter was conceived until 2006 when Samsung, Palm, Motorola and others finally came to market with high quality products. Having set aside their traditional ODM model in favor of a global HTC brand strategy, HTC will leverage Android to diversify its high-end product innovation, extending its addressable market beyond the implicit constraints of Windows Mobile.

Losers

- Client application framework pure plays, and *potentially* on-device-portal (ODP) pure plays:
  - The mobile industry has attracted numerous startups and initiatives aimed at creating advanced application frameworks or on-device-portals that emulate a persistent internet connection through advanced caching and rendering techniques. There are already too many companies chasing too few opportunities at a consolidating handset OEM base. Android increases uncertainty for these participants. Many of the former, such as Abaxia, SKY Mobile Media, Sasken, OpenPlug, and others such as Motorola's AJAR (formerly TTPCom) still have a significant opportunity in lower end emerging market volumes.
  - We define ODPs as client-side environments that permit rendering, manipulation of, and interaction with web-based content without the need for a persistent data connection. This is accomplished through a variety of caching and rendering techniques similar to those employed in forthcoming non-mobile-specific platforms such as Microsoft Silverlight, Adobe AIR, or Google Gears. In the mobile domain, notable vendors include Action Engine, UIEvolution (Square Enix), SurfKitchen and Nellymoser. It is not clear whether such implementations will work on top of, with, or be supplanted by Android's functionality.

In the Balance

- Samsung and LG:
  - Prolific licensees of leading OSs, neither of these Korean powerhouses have strategically embraced a software platform strategy. Both have suffered high costs as a consequence, having to optimize inflexible architectures to suit operator-specific environments. Both derive most of their volume and margin upside through hardware and form factor innovation. This is a high risk given hardware price erosion over time and very fast product innovation cycles from traditional and CE competitors such as Apple. Sustainable profitability in the intensely competitive global handset market demands intelligent platform choices. It's not clear that this is more than a simple announcement for now. Played correctly, Android could provide a vehicle for margin enhancement and sustainable differentiation based on innovative hardware and end-user experiences.
- Motorola
  - Motorola's software strategy is in disarray. Motorola's Java-on-Linux mass-market software strategy was first articulated in 2004. Whether because of product execution miscues or unforeseen platform development complexity, the strategy has not made a discernible impact on Motorola's position in the market. An increasing emphasis on Symbian-based products such as the Z8, and the acquisition of 50% of UIQ from Sony Ericsson indicate an active search for alternatives to costly in-house platforms. We expect a near-term high end portfolio bias toward Symbian on the basis of its maturity, stability, and comparatively large developer community.
- Verizon Wireless
  - It is not surprising to see Verizon absent from the Alliance or to see T-Mobile and Sprint present. To the extent that the US market remains a pitched battle between AT&T and Verizon Wireless for high-value subscriber mind share, T-Mobile and Sprint are compelled to stake more progressive positions. Android or Alliance participation is less significant to the conservative positions of the dominant operators, which can deliver advanced services on their own terms.
- Google
  - Android is a disruptive alternative to incumbent advanced OS offerings and numerous high performance but cost-intensive application-layer and best-of-breed application offerings. But a number of conditions out of Google's control must be met for success. These include just how well the platform works in practice, and the extent to which vendor-push and operator-pull create a scale-basis for developers.