

Analysis - Openness Is Only Skin Deep

By Keith Mallinson Wednesday, April 9, 2008

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Open access affects everyone in the value chain.

This is the second part of my discussion on openness in network technologies, terminals and wireless carrier services. In the previous column, I examined competition among network technologies with the trend toward an increasingly dominant GSM family of mobile standards including WCDMA, HSPA and LTE. In this column, I examine the effect of open software initiatives on applications development and handset competition as well as how open access to wireless carrier networks might enable new services, alternative operators and business models.

Open software platforms on handsets enable development of many new applications while handset vendors and wireless carriers continue to be customer gatekeepers. Proprietary platforms such as RIM and iPhone are challenging market dominance.

Open software platforms are a boon for developers and consumers on PCs and mobile phones. They provide foundations for numerous applications running on a wide variety of hardware.

Development of Microsoft's Windows OS is not collaborative as required by the ITU's open standards definition. It is, however, open in other ways. It supports countless software developers with documentation, development tools, training and marketing support. The result: more applications than any other platform. In the PC OS world, it's pretty much winner takes all with Windows.



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Analysts and others recognize the virtues of the Microsoft model with widespread OS licensing to hardware manufacturers, applications developers and end users. Informa Telecoms & Media, for example, includes Microsoft and Symbian along with Linux in the Open OS category of its market share forecasts. These platforms, in conjunction with their high-performance embedded capabilities as phones, data modems and video processors, enable widespread innovation – more than could ever be possible by any handset vendor alone. Nokia's acquisition of Trolltech will help Linux developers capitalize on the large base of Symbian/Series 60 devices.

But how far does openness extend? Independent developers make software calls to embedded functionality, while phone vendors retain tight control of these core applications. Smartphone video processing, for example, is typically implemented using dedicated DSP hardware and software that cannot be reconfigured or replaced by independent developers. Video software suppliers including PacketVideo, Real and Spirit DSP along with silicon vendors are highly dependent on design wins with handset vendors and in some cases with wireless carriers.

Verizon, for example, substitutes PacketVideo for Qualcomm's Qtv video processing engine for use with its V-Cast service. Real is a popular brand and its codec format is widely used, but it's beholden to Nokia with Series 60 for use of its media engine middleware.

Connecting mobile OSs and middleware remains a highly customized integration activity. Handset vendors graft media engines onto specific software driver and hardware configurations. The job gets easier as multiple phone models are increasingly based on a smaller selection of common hardware core assemblies.

Phones are increasingly integrated with fewer IC packages and more dies in each package. Applications processors

are combined with baseband modems, as is the case with Texas Instruments' LoCosto devices. Benefits include reduced power consumption, lower cost and smaller size.

Most handsets sold include custom silicon. Whereas TI and other foundries manufacture silicon, several major vendors including Nokia generally own the protocol stacks and proprietary baseband chip designs. Merchant chips are common platforms providing lower barriers to market entry for many handset vendors. Qualcomm only produces merchant chips, whereas TI produces custom and merchant devices.

Windows-like OS dominance is unlikely. In contrast to PCs, the mobile OS market remains fragmented. Mid-range and low-end devices use a wide variety of OSs, many of which will remain proprietary.

The smartphone category is set to expand rapidly as an increasing proportion of people use phones for more than just making calls. The impact on OS and handset vendor market shares will be substantial. Symbian dominates smartphones with around 70% share worldwide and much less in the United States where RIM and Apple (iPhone) are disrupting the status quo and Nokia's handset share is relatively low. Android also will take a significant share.

Open software platforms are like sandboxes. Developers can play to their hearts' content within them, but freedom outside is limited. Successful OSs are those with the most applications and devices. The tightly integrated nature of core applications such as modem functionality, video and the trend toward increasing hardware integration will keep leading handset vendors in control with significant spreading of OS market shares.

ALTERNATIVE SERVICE PROVISION

Open-access provisions – allowing network access for any application and compatible device – promise increased innovation and customer choice. Barriers for new service providers will lower, while incumbent network operators retain significant advantages. Most new providers will struggle at the mercy of incumbent carriers, as have resellers, MVNOs and most other ecosystem players without spectrum and network assets. Those with heft in complementary markets, such as Google, have a good fighting chance.

Third party service providers are nothing new. Resellers helped build the nation's subscriber base in the 1990s but they were commercial failures. Most MVNOs have fared little better. Amp'd and Disney Mobile folded. Virgin Mobile USA is struggling. Qwest and Embarq are seeking to renegotiate terms with MVNO host Sprint due to lackluster financial returns. Many mobile Web technology and content delivery providers including OpenWave and Infospace have foundered for years.

Licensing in the recent 700 MHz auctions promised increased competition. Market leaders AT&T, Verizon Wireless and other incumbents took most of the spectrum offered so there will be no major market disruption at the infrastructure level. The C-Block spectrum bidding threshold of \$4.6 billion was reached triggering the open-access requirements. Verizon Wireless, winning most of the C-Block spectrum, says it will allow any compatible device as long as it uses CDMA and includes E911 capabilities.

There are three ways challengers might succeed against the might of the incumbent carriers with established customer bases, networks and increasing spectrum stockpiles:

- With significantly differentiated or niche offerings that cannot be readily imitated by incumbents. WiMAX promises higher speeds at lower cost. That will be a tough sell against mainstream cellular technologies including HSPA and EV-DO Rev. B without undermining profit potential.
- A highly compelling end-user proposition enabling the challenger to dictate commercial terms to its carrier partners. RIM has achieved this with BlackBerry, as has Apple with iPhone. Nokia seeks this with Ovi, its Internet services suite, but does not yet have sufficient consumer clout to call the shots with carriers.

- By relegating incumbents to the position of dumb bit pipes – as are telcos and cablecos in fixed broadband. Open access provisions might make this possible.

Google's has straddled all of the above positions, but its preference or end game is with the third because it worked so well for it online. Presumably, Google was good to its word and would have ended up with the C-Block spectrum if there had been no other bidder at \$4.6 billion. This would have made it an infrastructure-based operator. I doubt they bid higher. Google wants open access to others' networks, not to be a host for other service providers. Google got exactly what it wanted in the auction without spending a dime on anything much other than lobbyists.

Although America is a big market, it would require massive infrastructure investments; while still only delivering a small proportion of Google's global target market in extending its online franchise to mobile. An infrastructure-based strategy is an impossibly expensive global plan that would be fraught with numerous other problems, such as inability to obtain spectrum rapidly in most places worldwide.

For the time being, Google is becoming the preferred search partner with a variety of mobile operators, as are branded and white label search providers with other carriers. The spoils are still modest and commercial partnering terms are unclear publicly. Carriers are watching their backs. Partnerships change frequently between branded search portals, such as Google or Yahoo!, and carriers.

Google's open handset initiative with Android, in combination with regulatory change and commercial pressure to make networks more open, gives Google and others the possibility of building strong and direct consumer relationships that bypass the infrastructure-based carriers. This is the nightmare scenario for carriers. However, at least it might help generate significant demand for their wireless data services that, SMS aside, are still only used by a small minority of mostly rather light users.

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