



Technology Brief...

June, 2009

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Want Carrier Openness? Be Careful What You Wish For!

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There has been a lot of pressure exerted lately to investigate the exclusive arrangements made between US carriers and manufacturers of "hot" wireless devices (i.e., Apple iPhone, Palm Pre, BlackBerry Storm, HTC Android G1). Such exclusivity agreements prevent consumers from purchasing a particular model without also committing to a two year contract with the exclusive carrier (e.g. AT&T for iPhone, Sprint for Pre, Verizon for Storm). But what would be the ramifications if such exclusivity arrangements were regulated out of existence?

First, the traditional subsidies consumers have grown accustomed to, and often valued at as much as \$200 off the price of a new device with a 2 year commitment, would be reduced or eliminated. The incentives for carriers would be eliminated if they couldn't lock a subscriber into a long term plan to recover the substantial acquisition cost. Elimination of the subsidy may not happen immediately because of competitive pressures, but it would happen relatively quickly.

Second, rates for data and voice plans would go up short term to pay for the extra churn that open devices would create by allowing users to move to another network. However, over the long term rates would likely go down as the carriers would have to truly compete for users without a lock-in. Competition would not only be on price, but customer service and network reliability as well.

Third, users would likely hold on to high end phones longer, since they would cost more (up to \$400-\$500+) and therefore they would be less likely to trade in on the 2 year cycle that subsidies now support. On the other hand, lower cost devices would be "throw aways", with most users who spend under \$100 on a device likely to replace it quickly if it's not what they want or like. For higher end unlocked devices, there could develop a substantial "used" market, as currently exists in other parts of the world.

Fourth, it would mean that third party/MVNOs would have a more level playing field, as they would no longer need to compete on the device (the user buys the device) and could simply offer good service at a good price. This also means the major carriers would be more relegated to being "dumb pipes" than they currently are, a position they are not fond of attaining.

Fifth, carriers would be even more likely to compete with the app stores from Apple, Google, RIM, Palm, Microsoft, etc., as this would be a way for them to generate additional revenues. They would cross-sell to phones on other networks, and not just their own. This could be advantageous to consumers as the competition

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could lower prices and increase variety.

Finally, device manufacturers would lose a significant revenue stream from carriers for exclusivity. They would have to be much more directly consumer oriented, selling more like PCs (with extras, rebates, etc.) than they do now. And carriers would have much less influence with vendors on putting in the specific features/functions they want, as vendors would want to make a universal device for all carriers. It would therefore be much harder for carriers to lock in or lock out apps on phones, unlike the situation today where carriers specify what is to go on any device sold by them, and often block apps that compete with their own.

Despite some potential benefits to consumers, we would be surprised to see regulatory changes in the short term, despite the virtual monopoly positions exclusive deals allow carriers to achieve. There is not enough pressure in the system right now to make this happen, as consumers generally are happy with their subsidies and not upset enough with carriers to exert sufficient pressure on regulatory agencies to make changes. There have been a few voices shouting for more openness and competition (especially around the iPhone), but in the overall scheme of things, we don't think this is a big enough issue right now for the government to take action. And certainly the major carriers would exert massive political pressure to maintain the status quo.

Bottom Line: If Apple has been able to maintain its iTunes monopoly with no government action, a situation affecting far more people, we don't expect regulators go after AT&T and the iPhone (they are not the only offenders, but they are the most visible). Overall, consumers would be unhappy if their subsidies disappeared, so how many would seek change if they understood the ramifications? We don't expect major change to exclusivity agreements to happen anytime soon.

Intel's Atom-ic ARMs Race

Intel is moving into attack mode against ARM, the dominant chip architecture in smartphone and other low powered Mobile Internet Devices (MIDs). ARM has a decided advantage in low power consumption and cost over the current generation of Intel chips, including Atom, which Intel is targeting at the device space. ARM is being used in chips from TI, Qualcomm, Samsung, Freescale and others and currently powers a majority of mobile phones. Intel has been out of the mobile phone market since it sold off its ARM-based XScale chip line to Marvel several years ago. But Atom is the key to changing that. First generation Atoms were based on older Pentium architecture designs that limited Intel's ability to cut power requirements and cost to the levels needed to compete with ARM. But next generation Atoms will have some significant power, performance and cost improvements.

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Intel dominates the complex computing environment for notebooks and desktops, but Atom is currently too expensive and power hungry to attack the lower end of the personal device market (e.g., smart phones, portable media devices, etc.), although it has done well in less power sensitive devices (e.g., Netbooks). But this disadvantage is temporary. Within a few months, Atom will have a major upgrade that will cut its power requirements by up to 10x, allowing it to compare favorably with many ARM chips. Further, the upgrade should improve its processing power substantially. Where Atom will remain lacking for the short term is in graphics processing. This is an area where Nvidia's Ion graphics processor is targeted (as an add-on to Atom for netbooks), and where Qualcomm's ARM-based SnapDragon hopes to establish its graphics prowess. However upcoming Atoms will incorporate

embedded graphics processing for video and limited graphics functions necessary to power feature rich smart devices/smart phones and netbooks, and potentially even low end notebooks. This will make it much more competitive.

Clearly ARM and its licensees are not sitting still. ARM is moving upstream into netbook territory to challenge Intel by offering support for various higher end OSes (e.g., Google's Android, Linux, and Sun announced its intention to port Open Solaris). At the same time, Intel is moving from its primarily Windows legacy into smaller, thinner OSes (e.g., Moblin). With ARM moving upstream and Atom moving downstream, there will be a number of intersection points where the two architectures clash. These "flash points" will include computationally intensive applications (e.g., video, 3D, gaming), OS support and Internet browsing capability (e.g., web browsers, Flash, Silverlight, AJAX/scripting). Which architecture works best in a specific usage model employing the above technologies will spell success or failure for adoption by both device manufacturers and end users.

There are pros and cons to each architecture's ecosystem. ARM has myriads of vendors in the smartphone and consumer device space and many seasoned programmers, although backwards code compatibility has been a challenge for ARM over successive upgrades of the architecture. Intel is new to the personal device market with Atom, but its huge numbers of Intel Architecture-savvy developers gives it a potentially large field of customers. And the potential to modify existing code to "downscale" to Atoms is very attractive to software vendors.

Bottom Line: The battle is joined as each tries to take over the other's sweet spot and expand into adjacent markets. In the short term, ARM has the advantage in power and cost. Longer term, however, we see the advantage swinging Intel's way. We don't expect either to eliminate the other from the market, but the strong competition should make for some interesting new devices.

Which Brand of Notebooks Do Companies Buy?

The following is excerpted from our research report Primary Notebook Supplier Choices in Large and Small Businesses.

We conducted a survey of approximately 340 companies and asked them a number of questions regarding their mobility plans and strategies. One of the topics for discovery was which vendors companies view as their primary and secondary supplier of choice for notebook computers. We asked these questions of a variety of large and medium sized companies in multiple industries. The survey revealed that both in North America and Western Europe there were some clear leaders and followers in the business notebook market.

The research results show that there is a significant amount of variation in vendor selection by company size, as well as for companies in North America vs. Western Europe. Further, the research indicates that there will be a significant change in primary vendor selection in the future, with companies indicating that their primary vendor choice will change in 3 years. The research segmented companies into categories based on the number of employees (<500, 501-9,999, and >10K) and analyzed the choices accordingly. Further, companies were categorized by revenues (<\$500M, \$501M-\$1B, and >\$1B). Significant differences exist between the primary vendor chosen based on the company size (SMB vs. large enterprise) and the geography (North America vs. Western Europe). Data on secondary vendor

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choices were also evaluated.

Some of the key findings included:

- Dell maintains a significant lead over number two HP in North America (52% vs. 24%) but only a slim lead in Western Europe (32% vs. 29%) among those companies indicating a primary supplier of Notebooks. (See Figure 1)
- When companies were asked about their primary choice in three years, both Dell and HP lose share to competitors, although Dell and HP maintain their number one and two positions respectively.

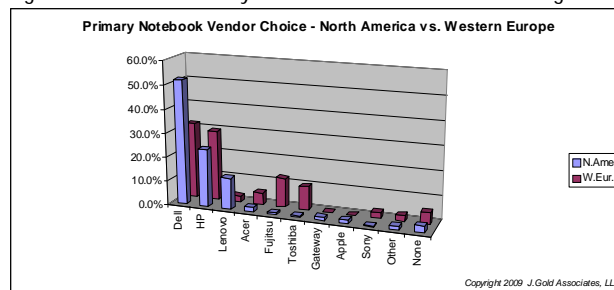
Our intent in conducting this research was to identify the primary and secondary notebook vendors of choice for both large and small businesses in North America and Western Europe. Further, we wanted to assess if there would be a different choice made by companies looking out 3 years. We found that the markets in North America and Western Europe made different choices in primary vendors, and had different plans going out 3 years."

Some additional key findings include:

- Dell is the primary vendor of choice overall for companies in both North America and Western Europe, with 50% of companies of all sizes specifying Dell as their primary vendor of notebooks. HP is in second place with an overall selection by 25%.
- Toshiba and Fujitsu had a significantly higher share of companies picking them as a primary supplier in Western Europe than in North America
- Apple had a very small share and with little growth in the next 3 years
- Lenovo was in third place in North America, but in sixth place in Western Europe.

Additional breakouts by company size, geography and industry are available from the research, and customized analysis of the data is available as well.

Figure 1: Current Primary Notebook Vendor Choice Averaged Across Companies of All Sizes



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Major Market Studies

- Enterprise Mobile Applications: A Study of Strategies and Adoption Trends (Complete Report)
- Mobile Business Applications: A Study of Strategies and Adoption Trends (Executive Summary)

Technology Reports

- Solid State Drives in Notebooks: Cost Advantage or Cost Liability?
- Keeping Notebooks Past Their Prime: A Study of Failures and Costs
- Survival of the Fittest: Will Windows Mobile Go Extinct?