



Technology Brief...

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Does RIM Have a Back-up Plan?

Many are worried about the long-term viability of BlackBerry given its shrinking market share. Of course, RIM is still making money and selling lots of phones. But the competition from iPhone and Android is intense, and it has to do something to be seen as a “next gen” smartphone supplier if it wants to regain its luster. In fact, the venerable BlackBerry is currently in a “tweener” stage. The existing generation of devices and the OS that powers them is getting old. RIM is significantly revamping the BlackBerry OS through a new kernel (QNX) and a new user interface, and integrating a number of other technologies it has been on a tear to acquire over the past 1-2 years (e.g., Torch Browser, extending BES to manage iPhone and Android devices, in-app monetization, social media extensions, push notifications, LBS).

The complete transformation will take 1-2 years, but the initial fruits of RIM's labors are being demonstrated with the current PlayBook OS, a version of which will soon make its way down into the smartphone category. But it isn't clear if users will stay loyal until the new phone OS is out late this year or early next year. The question many are asking, is this too little too late? What if BlackBerry OS Next doesn't take off? What if the PlayBook isn't popular? We believe RIM has a backup plan. And it could prove to be a real winner.

QNX gives RIM a strategic advantage as a high performance and highly adaptable RTOS (real time operating system). What if BlackBerry devices (and PlayBooks) could have multiple OS boot capability? Image a BlackBerry device running Android better than Samsung, Motorola, et al! And with complete security and manageability. That's what RIM could do on its devices and has already hinted at doing with its Android app player. QNX gives RIM that capability and more.

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Replacing the kernel in Android with QNX Neutrino (a Posix compliant OS that could replace the Linux kernel in Android), creates a compatible Android platform that exceeds the performance of vanilla Android, and adds a host of features not available in Android (e.g., security, full DRM, app segmentation (Balance), BlackBerry Messenger, etc.). That could put RIM in the position of running the best Android on the market. So, as Android picks up steam, this could be a safety net if RIM can't make BlackBerry the best of the best. It could also use this capability to leverage the sales of BlackBerry (and PlayBook) devices, letting people know they can easily run all the Android apps they want (just like Apple leverages running Windows apps on its Mac OS PC platform). Clearly Android version compatibility will still be an issue (e.g., Froyo, Gingerbread, Honeycomb), but no more so than with any other devices already in the market

To be sure, this is not RIM's preferred outcome. It would much rather control its

ecosystem as it has done in the past (and which Apple in particular does incredibly well). But most people would acknowledge that RIM makes excellent HW. If it can't generate renewed excitement with its user experience, perhaps Android's growing popularity could (in conjunction with BlackBerry services). At the very least, running in dual-boot mode (both BB OS and Android OS) could open the BlackBerry to a growing array of apps. And RIM would still make lots of profits in the extended services beyond vanilla Android it could offer users.

So, RIM could have the best of both worlds. It will revamp its BlackBerry OS, but if that doesn't become popular (or become popular enough fast enough) it has the option of enabling users to deploy Android apps. This could prove highly popular with business users who bring their own devices to work for the availability of apps, but also with IT departments who need to secure and manage them, a win-win strategy.

Bottom Line: Not a bad strategy (both defensively and offensively) if RIM can pull it off! We think they can. And it puts them in a lower risk position than Nokia with its "all its eggs in one basket" position, and ahead of the largely undifferentiated and no real value added Android-clones from many Far East suppliers. Don't count RIM down and out just yet!

Intel vs. ARM – The Battle Isn't Over Yet

The market seems to believe that ARM and its licensees (TI, Nvidia, Qualcomm, Marvel, Apple, et. al.) are on the verge of attacking Intel where it is most susceptible – the PC and server space. Indeed, ARM is making inroads with low power designs, and has a virtual monopoly on mobile devices. But the path to PCs and Servers is different than smartphones and tablets. And clearly, Intel doesn't think it can afford to concede any territory, and is pushing back hard on the mobile "heartland" of ARM. So what does Intel have going for it vs. the ARM ecosystem?

Many observers seem biased towards ARM and are discounting Atom's potential in phones and tablets. We believe Atom has a good change to succeed and to thrive. Not perhaps in the current version, but in the next generation of chips Intel will launch in 6-12 months. We expect Intel to stay far ahead of ARM in the race for PCs and even high end tablets. Why? Here are some reasons.

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First, Intel's huge investment in processing technology is not putting it at a disadvantage as some have suggested. Actually it's the other way around. The ARM camp is relying on the foundries to make the process improvement investment for them. But after they've matched Intel's recent investment of \$15B or so, foundries will have to recoup that investment, and that will mean higher chip costs to the fabless vendors (no free lunch here). At the end of the day, process advantage does matter. It's how Moore's Law has remained in play, and process advantage means higher performing chips at lower power and eventually lower cost (as yields increase). And Intel's recent development of 22nm and 3-D transistors means its lead is increasing and has a two year (or more) competitive advantage.

Second, comparing ARM to Intel usually turns to RISC vs. CISC. We thought that argument was settled years ago with Transmeta and MIPS before that. The bottom line is that in more complex systems with increasingly complex computing requirements, longer and more complex instruction sets improve performance. This is what Microsoft found out years ago when it suspended development of Windows on RISC. Yes, it now say it will have Windows 8 running on ARM. But what version and what features? We expect the highest end and more performance oriented versions of Windows will remain focused on the x86 architectures. And ARM isn't even on 64 bits yet. Imagine a server with a large database running on a 32 bit RISC

architecture compared to a full featured 64 bit CISC version. As functions get more complex, specialized instructions and HW additions give x86 (including Atom) an advantage unless ARM adds the same HW and SW extensions.

The third issue is compatibility. There is a perception that ARM is compatible across platforms and vendors, and clearly its not. As a result, there is an upgrade problem being faced by older devices in the market, and even among devices from the same manufacturer. In fact, different licensed versions of the ARM architecture have incompatibilities. And deep licensees (e.g., Qualcomm) are building their own architecture that is supposed to be compatible with other vendor's chips (but is it?). ARM fragmentation is an issue usually not discussed. But it is real.

Finally many think that Intel is a chip company, and forget that it has tens of thousands of SW engineers on staff. This allows it to create the best compilers in the industry, and to optimize ports to its platform well beyond what others can do. And WindRiver gives Intel incredible breath in tools and designs. Many perceive Google's commitment to Android on Atom as lukewarm. But Intel has invested considerable resources to port and optimize Android for its platforms, albeit a bit late. And even though current WP7 doesn't run on Atom, it is quite likely that WP Next (e.g. Windows 8) will do so where there is OEM demand, especially in the tablet space. Further, now that Intel has absorbed McAfee, it is very likely to create industry-leading HW-enabled security features that users will find appealing and competitors will have trouble duplicating.

MeeGo remains a sore spot for Intel, especially after Nokia's rejection of the OS for its devices. It is not clear if MeeGo will ever get out of the niche markets its now targeting. But some vendors see it as an alternative to Android's (and Apple's) hegemony, especially in emerging markets. So while it may never achieve the huge numbers of units that its competitors will ship, it will nevertheless have a credible niche to exploit. But Intel is not riding MeeGo as its only path to success.

Bottom Line: For Intel, it's about the ecosystem. As code gets more complex, it's increasingly difficult to produce and manage, especially across multiple platforms. This is problematic for both OS developers and ISVs who want to port their apps (how many versions of Android apps are there for OS versions and for devices from different manufacturers). Intel's x86 consistency is a selling point and fragmentation plays to its strength. Certainly we are not signaling the death knell for ARM. But those who minimize Atom's future potential are making a mistake.

SAP Leaves its Competition Immobilized

The traditional players in ERP, CRM, SFA and other employee productivity solutions are feeling the heat from the increased use of mobility as a key differentiator in corporate worker efficiency improvements. The dramatically expanding role of next generation smartphones and tablets (e.g., iPhone, iPad, Android, BlackBerry), often acquired by the end user and then enabled by IT, are causing many organizations to deploy key mobile-enabled applications that only a short time ago were relegated to Windows based notebook PCs. In fact, we expect that the biggest growth in business use of smart mobile devices over the next 1-2 years will come in increased deployment of back office oriented mobile solutions (beyond email and messaging). We expect most enterprises to have at least 3-6 mobile business applications deployed in that time frame, with some organizations deploying 10-15. This trend requires a fundamental reshaping of how the major back-office solution providers create and deploy their apps.

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- Keeping Notebooks Past Their Prime: A Study of Failures and Costs

Most organizations that use these mission-critical vendor's products (e.g., SAP, Oracle, IBM, Microsoft) require enablement for specific real time mobile apps, on a wide variety of device types and form factors. Further, a large portion of these mission-critical apps are not being implemented as off-the-shelf products, but rather consist of business specific and/or modified solutions. Customized features are inherent in many installations. It is imperative that the equivalent features be available on the mobile devices that most users now require. And it is equally important that organizations obtain a mobile solution that is flexible and easily modifiable without the need for large scale vendor support services.

SAP uniquely recognized among its major competitors that customers were not willing to do business as usual (i.e., spend lots of money and lots of time on unique projects to mobilize specific functions). It acquired Sybase and its Unwired Platform to provide a uniform and multi-device path to cross-platform mobilization. The Sybase Unwired Platform (SUP) is not an automated panacea that will provide everything a company needs to mobilize all apps. But it does provide for a fairly easy way to achieve mobilization for companies willing to learn the environment compared to developing everything from scratch (often the case in the past).

Because SUP is a standardized platform, any solution developed with it can be leveraged across both inter and intra company lines. SAP has introduced a significant number of industry-specific and operationally-specific modules (e.g., field service, retail management, human resources, finance). But unlike its competition that generally creates each project as a unique offering, SUP can ultimately provide a library of modules which companies can resell and/or share with others. This SUP App Marketplace, although not in place currently, will likely be formed in the near future as a logical extension to the SAP business model, and create a significant ecosystem for third party ISVs. SUP is essentially replacing NetWeaver as the mobile go-to solution environment, and is enhanced with all of the other mobile features that SUP brings to the table (e.g., device management, app delivery, security). This approach puts SAP in the mobile leadership position.

Oracle has announced that it is moving to its Fusion integrated product approach which will have a mobile component, and IBM is moving towards more mobilization of WebSphere, while Microsoft is focusing mostly on the cloud as its mobile strategy. However none have the depth of capability of SUP nor offer the ease of mobilization and control. Of course, many companies are looking at deploying apps in the cloud for mobile workers. But we believe that the majority of workers will not be well served by cloud-only apps because for the foreseeable future, full time and high bandwidth wireless connectivity (required for thin client apps) will not be universally available. And this makes on-board apps running on the device and synching with a back end mandatory. It also significantly reduces the amount of data traveling across the wireless network, which will, as more carriers move to metered charges, reduce the overall cost of operations.

Bottom Line: We believe that SAP has done a good job of building a mobile strategy to leapfrog its competition. While SUP can still be improved to make it easier to use for in-house development, it nevertheless provides a uniform way for SAP apps to get to a wide variety of mobile devices. And with a future App Store very likely on the horizon (a very successful strategy leveraged by the Salesforce.com platform), it will give many organizations an easy way to acquire modules/functions. While we believe that Oracle and IBM could eventually catch up, neither is likely to do so in the near term, nor without acquiring similar technology as SAP did with SUP.



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