

# A New World Order for Tech Computing

Eric Brockman, Alereon ([www.alereon.com](http://www.alereon.com))



The years CES and the recently completed Mobile World Congress in Barcelona indicate that we are on the verge of a tipping point in the computing ecosystem versus what we have known for the past 20 years. The future growth of technology won't be driven from the Win-tel alliance as it has been. Rather, we are moving to a world where ARM multiprocessors and Android OS favors will dominate in both smartphones, tablets, consumer notebooks and even Apple laptops. Intel and Microsoft will lose their dominance and transform into just another large company participating in the technology fray, but will no longer tower over an entire ecosystem.

This transformation is a result of the forces of competition and Darwin's acting in the marketplace, along with the quest for search engine dollars that subsidize OS development. In particular, we see new CPUs being introduced from Nvidia, Qualcomm, TI, Samsung, Marvell and Apple based on the ARM processor targeted at smartphones and tablets. Simultaneously, we see Android quickly evolving from a basic smartphone OS into a tablet OS that can start reasonably well in the notebook marketplace. At the same time, we have Microsoft demonstrating an early prototype of Windows 8 running on an ARM processor in parallel with the once mighty Nokia succumbing to market share losses and their inability to build a true smartphone adopting Windows Mobile for their future smartphones. The Darwinian nature of the competition among multiple vendors to supply ever superior ARM based SoCs will result in some of the chip companies delivering chips superior in price, performance and battery efficiency.

versus Intel's efforts with Medfield to crack into the smartphone world. Moreover, the drive to support tablets, using the same form of chip will result in a spillover effect into the notebook market, and in Apple's case, even into the Laptop market.

As Android penetrates the hearts and minds of young consumers, they will test at home with Android and of course Apple's OS, leaving Windows to the over 30 crowd. Moreover, as ARM CPUs continue to evolve and innovate, with Nvidia and Qualcomm at the forefront, we are very likely to see the Apple PA Semi team build a multi-core ARM CPU that will run Apple's OS that will displace Intel from Apple 13" laptops in the future. Other PC OEMs will use Nvidia CPUs on entry laptops running Windows 8, and notebooks and below will run on Android. Over time, Microsoft and Intel will get pushed into being in the server business and into the Enterprise markets, with the consumer market becoming dominated by ARM CPUs, Android and Apple OS.

Don't get me wrong, Intel isn't going anywhere. They are still a manufacturing power house, which is their true strength. They may begin to wish they hadn't sold off their ARM team to Marvell as they steadily lose market share and relevance in the consumer market segment. Likewise, Microsoft will give it the valiant fight - but Nokia won't be enough to stem the oncoming tide of the Android tsunami and the plethora of innovative ARM CPUs coming to smartphones, tablets and notebooks - not to mention Apple Laptops.

The tech winners will be Nvidia on CPUs, Qualcomm for smartphones and of course Apple. The real winners will be consumers.

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