THE EDITORS' VIEW

# The Birth of a Platform

## Launch of Apple's Newton is a Watershed Event

Major new computing platforms don't emerge very often. In the early days of PCs, we had Digital Research's CP/M operating system running on Intel 8080 and Zilog Z80 microprocessors. This standard was displaced by the IBM PC, using Microsoft's DOS and Intel's 8086/88, and by the Apple II, using the 6502 processor and Apple's own software. Then, in 1984, Apple introduced the Macintosh, and Microsoft began the long evolution of Windows. In 1992, Windows 3.x running on Intel's 386 and 486 microprocessors became the dominant platform.

While there are countless other computing platforms, those on the short list above have dominated computing to an amazing degree. Being at the heart of a successful platform has been a processor architecture's surest route to volume sales, as the x86 attests.

Introducing a radically new operating system—much less a new hardware standard as well—is a daunting task. Incrementally improving the existing standard is always much easier than starting from scratch; it allows developers to leverage all the application development work that has gone before, as well as existing operating system code.

Yet there comes a time when the environment has changed so much that starting from scratch is the best approach, and the emergence of pen-based, handheld computers is one such time. These devices are fundamentally different from desktop and portable computers. While you can take a notebook computer on the road, it isn't the best traveling companion. It is simply a portable version of a desktop device—not a device designed from the ground up for portable use. Most notebook computer users won't give up their notebooks for a handheld computer, but they may well leave their notebook in their hotel room while the handheld device stays with them all day.

Eventually, far more people will use handheld computing devices than desktop computers. But, for the near term, handhelds will be used primarily as adjuncts to desktop systems. As such, the ability to easily move data between the desktop and the handheld device is essential. Using the same applications in the handheld device as on the desktop system is not only unnecessary, it's undesirable. The new platforms need new applications designed for the portable environment.

The Newton is Apple's first new platform since the Macintosh, and it could become just as significant. Like the first Mac, the first Newton has its share of weaknesses. But, Apple got a lot of things right, and it is important to separate the architecture from the implementation. Today's implementation has some serious flaws—such as the handwriting recognition—but these problems are not fundamental to the platform. While the press has been very critical of Newton, many developers (Apple claims more than 1,000) are enthusiastic enough to have begun work on applications for the new platform. In the coming year, as new Newton hardware emerges, the application library grows, and the built-in software is refined, its usefulness will improve dramatically.

Apple will not repeat the biggest mistake it made with the Mac—keeping it proprietary. Already, several other companies—including Sharp, Motorola, and Rolm—have licensed Newton technology, and more are on the way. Apple also designed Newton to be portable in the software sense, as well as the physical sense. The first devices use ARM processors, but there will be other processor architectures in the future.

Newton applications are written entirely in Newton Script, which is an interpreted, processor-independent language. In fact, it is the first major computing platform to use a processor-independent application format. Although Newton has catapulted ARM into the limelight, ARM is in a much less secure position than is the x86 in the PC world. While Apple plans to focus on ARM processors for its future Newtons, at least in the near term, other licensees may use other processors. In particular, Motorola is likely to build PowerPC-based Newtons.

Apple is not alone in recognizing the opportunity at hand, of course. Go's PenPoint is another operating system designed for handheld computers, and it is not yet clear how the market will divide between PenPoint and Newton. The market potential is huge, however, and there is room for both, as well as for low-end competitors such as GeoWorks. Whether Microsoft can make a version of Windows compelling for handheld devices remains to be seen. For once, Microsoft and Intel don't seem to be in the dominant positions—at least not yet. (An x86 Newton, however, is not out of the question.)

With the hectic pace of the computer industry, it's easy to become jaded and cynical about new products. The first Newton product is easy to criticize, and it is clearly full of flaws. But the emergence of Newton should not be mistaken for just another new product. It is the birth of a platform—an event that is likely to have great significance for the future of computing. ♦