THE EDITORS' VIEW

API Wars—Too Late for Apple?

Mac vs. Windows vs. Unix Battle Enters New Phase

As software development for general-purpose computers has moved from assembly language to high-level languages, porting software from one system to another has become simpler. "Just recompile" has, however, been one of the great myths of the computer industry.

One major stumbling block has been the differing application program interfaces (APIs). Porting an application from the Macintosh to Windows, for example, involves much more than recompiling 68000 code to x86 code; it requires converting the program to use the system services offered by Windows instead of those offered by the Macintosh. Subtle differences in compiler syntax, byte ordering, and alignment requirements can also cause headaches, but these problems are minor compared to switching to another API.

Operating system developers are currently engaged in a battle to set the API that application developers will choose for their primary target, and a key weapon in this battle is providing the same API on foreign systems. Doing so gives the competing OS additional applications, but it is still desirable because it makes the API more pervasive and thereby more attractive to developers.

There has recently been a flurry of activity in this area, and it is only in the context of the API wars that some recent announcements and rumors begin to make sense. One example is SunSoft's decision to port Solaris to PowerPC. SunSoft is presumably driven by the desire to make application developers feel more comfortable developing applications for the Solaris API.

The major battle is between the Macintosh and Windows APIs. Apple is on the defensive here; because Windows systems outnumber Macintoshes by a large margin, software developers are being lured to Windows. Apple has talked about—but not delivered—a cross-development environment, called Bedrock, that promises to provide a platform-independent API for creating Macintosh and Windows applications.

More recently, reports have been circulating that Apple is working with Novell to provide the Macintosh environment on the PC. The future product reportedly will provide the Macintosh "look and feel," as well as the Macintosh API, on IBM-compatible PCs. This new operating system, expected to combine the DR-DOS core with an implementation of Apple's Macintosh ToolBox, would enable Macintosh developers to create PC versions of their applications by recompiling for the x86 architecture. Because it would provide the Macintosh API, this would be far easier than porting a Macintosh applications to Windows. According to reports, the Apple/Novell product does not yet have the capability to run Windows applications, however. What is missing here, as with SunSoft's Solaris port to PowerPC, is a compelling reason for customers to use the product.

UNIX has long been hampered by a proliferation of UNIX variants, each of which has a different API. The long overdue grand unification of UNIX, recently promised by a collection of leading UNIX system vendors, is aimed at solving this problem by agreeing on a single API ("COSE") for a variety of UNIX systems.

This unification—which is still only a promise—comes too late for UNIX to capture an application base close to that offered by the Macintosh or Windows. In an attempt to solve this problem, many efforts are underway to provide the Windows API under UNIX. Emulation products have been available for years, but these are less interesting because they require that all of DOS and Windows be emulated, crippling performance.

The newer trend is to implement Windows functions in native code, greatly improving their speed. Sun is developing a set of libraries that implement what it calls WABI (Windows ABI), which, when combined with an x86 instruction-set emulator, would allow Windows x86 binaries to be run on SPARC systems.

Microsoft itself has recently joined the fray by announcing an agreement with Insignia Solutions to provide Insignia with Windows source code for a Windows environment under UNIX. Microsoft is also developing, on its own, a set of libraries for the Macintosh that will provide a Windows API for the Macintosh OS.

It appears that Apple may be fighting a losing battle. If Apple had licensed its system software to other hardware vendors before Microsoft introduced Windows 3.0, Apple could have established its API as the de facto standard. Now, however, the Windows momentum is probably unstoppable. The rumored Apple/Novell product seems to be too little, too late.

Apple's last chance to make the Macintosh API a multivendor standard is to license its System 7 software on PowerPC, before the Windows NT on PowerPC effort gains steam. Apple's refusal to do so has pushed Motorola—which could have been a powerful ally in proliferating the Mac API—into backing Windows NT. ♦