

The Star Trek Saga

The idea of porting the Mac OS to run on Intel processors wasn't new (Dan Eilers, Apple's director of strategic investment, first proposed the idea in 1985), but it gained a renewed sense of urgency after Apple shipped System 7 in May 1991 and it failed to make headway against Microsoft Windows 3.0. Ironically, it wasn't a determined Apple engineer or insightful executive who finally got the ball rolling. That honor goes to a company that few outside of the industry have ever heard of: Novell of Provo, Utah.

Networking giant Novell (www.novell.com) wanted to provide an alternative to Windows by creating a Mac-like interface for its DR-DOS that ran on Intel-based IBM PC clones, but feared getting sued by Apple (at the time, Apple's copyright infringement suit against Microsoft was still very much alive). Rather than risk an infestation of lawyers at its headquarters, Novell decided to find out if Apple was willing to work together on such a project. On Valentine's Day 1992, Darrell Miller, Novell's VP of strategic marketing, met with several Apple software managers to reveal his company's plan. Excited by the possibilities, the Apple contingent obtained CEO John Sculley's blessing, and the two companies immediately began working together on a project that came to be called Star Trek, because it would boldly go where no Mac had gone before: the Intel platform. When Bill Gates heard of Apple's plan to put the Mac OS on an Intel machine, he responded by saying it would be "like putting lipstick on a chicken."

A group of 4 engineers from Novell and 14 from Apple was put together by Gifford Calenda in suite 400 of a Novell marketing office called Regency One in Santa Clara, directly across the street from Intel's headquarters. That was no accident. Sculley had met with Intel CEO Andy Grove, who agreed to help the Star Trek project because, ever paranoid, he didn't want to be so dependent on Microsoft. Each Star Trek engineer was given an office with a Mac and a 486 PC clone donated by Intel.

On July 17, the Trekkie team was given until Halloween to come up with a working "proof of concept." As an indication of the importance

DR-DOS was created by Digital Research Inc., which had been sued by Apple in 1985 after it released GEM Desktop, an operating system that grafted a Mac-like interface onto PC clones. Too small to fight Apple, DRI settled the suit by altering its interface and was eventually acquired by Novell.

"All the MBAs in the world can't convince us it's a good model."

*Manager of Mac software architecture
Roger Heinen, when asked in March
1992 about making System 7 run on
Intel processors*

After working together on Star Trek and QuickTime, Fred Monroe and Fred Huxham eventually went on to form fredlabs inc. (www.fredlabs.com) in San Francisco. At the Macworld Expo in January 1997, fredlabs garnered considerable attention for its VirtualMac, which allowed users to run Mac applications within the BeOS running on a Power Mac.

Apple placed upon the project, each engineer would receive a bonus of between \$16,000 and \$25,000 if they succeeded. "We worked like dogs. It was some of the most fun I've had working," recalls team member Fred Monroe. Free of managerial meddling, the small team not only succeeded in getting the Mac's Finder to run on the PC clones, they also managed to get QuickTime and some of QuickDraw GX working, as well as the "Welcome to Macintosh" startup greeting. Having met their deadline, the Trekkies collected their bonuses and took off for a well-deserved vacation in Cancun, Mexico. In their minds, they had laid the groundwork for a product that could save Apple by allowing it to compete head-to-head with the inferior Microsoft Windows on its own turf: Intel-based computers.

Now it was up to team leader Chris DeRossi and Roger Heinen, VP of software engineering, to convince Apple's executive staff that Star Trek was worth pursuing. On December 4, they presented the Star Trek prototype to the assembled staff, many of whom couldn't believe their eyes. From all outward appearances, here was the fabled Mac OS running on an Intel computer; Star Trek had managed to penetrate deep behind enemy lines. Fred Forsyth, head of Apple's manufacturing business and hardware engineering, saw his career flash before his eyes. If Apple was successful in getting the Mac OS to run on Intel, demand for Apple's hardware would likely slump. Furthermore, the company was committed to moving the Macintosh to the PowerPC, and the Star Trek project was perceived to be a threat to that effort as well. How would it look to partners IBM and Motorola if Apple was porting the Mac OS to Intel processors at the same time it was collaborating on the PowerPC? Over these objections, Heinen was given the go-ahead to have his team attack the detail work to make Star Trek fully functional.

Armed with the executive staff's approval, Mark Gonzales, the project marketing manager, made the rounds of PC clone vendors to gauge their interest in bundling Star Trek on their systems. Most were intrigued, but argued that they couldn't afford to pay much for it because their contracts for Windows 3.1 forced them to pay a royalty to Microsoft for every computer shipped, regardless of what operating system it contained. (This anti-competitive practice eventually landed Microsoft in trouble with the Department of Justice.)

Worse than the clone-makers' tepid reception to Star Trek was Heinen's defection to Microsoft at the beginning of 1993. Without Heinen around to protect the Trekkies, in February the project was moved back onto Apple's campus at Bandlely 5 and placed under the control of David C. Nagel, then head of the Advanced Technology

Courtesy of Microsoft Corp.



Star Trek was dealt a crippling blow when manager of Mac software architecture Roger Heinen left Apple for a position at Microsoft.

Group. The project ballooned from 18 people to 50, and most were forced to write detailed specifications and white papers instead of concentrating on writing code. Then COO Michael Spindler instituted a round of belt-tightening. After Nagel had allocated his budget to revising the OS for the PowerPC and updating System 7, there was not enough money left over to fund the completion of Star Trek, which was estimated to take 18 months and \$20 million by some accounts. Nagel considered merging Star Trek with another project just getting under way. Code-named Raptor, it was an

alternative to the Pink OS mired in the bickering at Taligent and was intended to run on any CPU, not just Intel or Motorola processors. However, the merger plan was deemed infeasible, and Star Trek disappeared into a black hole in June 1993. Work on Raptor would continue and eventually evolve into Copland, the long-promised, never-shipped sequel to Mac OS (see “The Copland Crisis,” page 225).

Even if the engineers had managed to complete Star Trek, it wasn't as if suddenly every existing Mac application could run on Intel computers. Star Trek was designed to be source-level compatible, not binary compatible, with the Mac OS, meaning Mac applications would have to be recompiled by their developers to run on Intel processors. Those programs that directly addressed the Mac hardware would have to be rewritten. Needless to say, many software publishers were skeptical about the amount of work that would be necessary to port their products to PCs running Star Trek. Besides, a working demo of Star Trek isn't the same thing as a finished product. Remember, Apple engineers cobbled together pretty impressive proof-of-concept demos for Copland and Pink, too, but they never shipped either.

Just because Apple docked Star Trek doesn't mean you can't run Mac applications on other computers. In October 1995, Apple said that adapting the Mac OS for IBM's PowerPC Reference Platform (known

as PReP) would be a technically daunting challenge and used that as an excuse to promote its variation, CHRP. That didn't stop Quix Computer (www.quix.ch), a company outside Lucerne, Switzerland, from succeeding in making the Mac OS work on PReP systems with just a half-dozen engineers. Despite the potential widespread demand for such a product, Apple refused to license the Mac OS to Quix, and as a result, Quix moved on to develop technologies for more receptive companies. Apple couldn't quash Executor as easily. A small company called ARDI (www.ardi.com) in Albuquerque, New Mexico, managed to reverse-engineer the Mac OS and Toolbox to create a version of System 7.0, called Executor, that can run on Intel 486, Pentium, and DEC's Alpha processors. Executor is far from a perfect port. It doesn't support serial port access (meaning AppleTalk and modems won't work), sound input/output is primitive, there are no provisions for internationalization, and neither extensions nor control panels can be used. Nonetheless, Executor runs many standard Mac programs on PCs. Imagine what it could do with Apple's support.



Courtesy of Clifford T. Matthews

With no help from Apple, ARDI reverse-engineered the better part of the Mac OS, allowing PC users to run many Mac programs inside Executor.

In late 1997, many of the Star Trek engineers held a reunion in Cupertino following the expiration of their five-year non-disclosure agreements. Rumor has it that there's a new Star Trek NG (Next Generation) project involving an emulator that allows Mac OS applications to run on Intel hardware under Rhapsody. Only time will tell if Star Trek NG beams Apple back into the limelight or gets lost in space again.