orthy of Two Months: Steven P. Jobs (part 2 of 2)

This is the second in a two-part series on Steve Jobs. This website can be found at http://www.geocities.com/SoHo/8985/ and was designed by Apple Wizards staff member Robert J. La Follette. We encourage you to visit Robert's home page at http://junior.apk.net/~rjl/.

eXT Step

Jobs sold over $20 million of his Apple stock, spent days bicycling along the beach feeling sad and lost, toured Paris, and journeyed on to Italy. It was not until late August that he began to catch his breath and thought back on his experience at Apple. Though he is not an engineer, he felt his greatest talent had been spearheading development of new products. Jobs also recalled with special pride that he had helped introduce personal computers into education. To collect his thoughts one day, he took up pen and paper and began to write down the things that were important to him. Along with the development of the Macintosh, he listed three educational projects he had launched: Kids Can't Wait, Apple Education Foundation, and the Apple University Consortium.

Inspiration came at the beginning of September 1985 when he had lunch with Paul Berg, a Nobel laureate in biochemistry at Stanford University. Paul Berg explained to Jobs the time-consuming trial-and-error experiments carried out to extract DNA. Jobs asked whether Berg had ever thought of speeding up these experiments by simulating them on a computer. Berg said most universities did not have the necessary computers and software. "That's when I started to really think about this stuff and get my wheels turning again," said Jobs.

n September 12, 1985, Steve rose in the board meeting and said in a flat, unemotional voice "I've been thinking a lot and it's time for me to get on with my life. It's obvious that I've got to do something. I'm thirty years old." Offering to resign as chairman, Steve said he intended to leave the company to start a new venture to address the higher education market. The company Jobs envisioned would have sales reaching $50 million annually in a few years and would not be competitive with Apple, only complementary, and that he would take with him only a handful of personnel. John Sculley said, "All of us want you to reconsider your decision to resign from the board. Apple would be interested in buying 10 percent of your new company." Jobs told the board he would think about it and tell them his decision the upcoming Thursday.

That Thursday, Jobs went into Sculley's office and handed him a piece of paper with all five employees that would leave with him. The employees were Rich Page, an Apple Fellow and one of the company's most important engineering designers; Daniel Lewin, the marketing manager for higher education business; Bud Tribble, the manager of software engineering for Macintosh; Susan Barnes, senior controller for US sales and marketing, and George Crow, an engineering manager with vast Macintosh experience. Together they knew Apple's internal schedules, costs, focus of next products and schedule of when Apple would introduce them, how they would be used, and which individuals and universities Apple would work with to ensure their success. The board authorized Sculley to begin litigation on the basis that Steve allegedly made plans for the new company while serving as Apple's chairman, and that Steve falsely represented his company and intentions to the board.

Software Company

After leaving Apple, Jobs' revolutionary ideas were not in hardware but in software of the computer industry. In 1989, Jobs tried to do it all over again with a new company called NextStep. He planned to build the next generation of personal computers that would put Apple to shame. It did not happen. After four long years of struggle and after running through some $250 million, NextStep closed down its hardware division in 1993. Jobs realized that he was not going to revolutionize hardware. He turned his attention to the software side of the computer industry.

n 1994, Jobs felt there was a lot of

money in developing an object-oriented industry that would fix the problems companies had in developing software. The corporate developers were going to fuel the object revolution because they knew they had a giant problem that needed to be solved in software development, and PC makers were doing less to serve the needs of software developers. Jobs said, "Our primary mission is to establish NextStep as a leading operating system in the Nineties." Jobs envisioned NextStep would revolutionize the computer industry by its operating system software which incorporated a hot technology. It's called object-oriented programming (OOP), and OOP lets programmers write software in a fraction of the usual time. Jobs felt OOP is the solution to corporations' problems of wasting money to develop software, because OOP serves as a blueprint to develop programs like CAD applications for constructing a building. Jobs thought the OOP paradigm will have had a great effect on the production of software, much like the effect the Industrial Revolution had on manufactured goods. "In my 20 years in the industry, I have never seen a revolution as profound as this. You can build software literally five to ten times faster, and that software is more reliable, easier to maintain, and more powerful," says Jobs.

Jobs felt software programs had gotten bigger, more complicated, and much more expensive to produce. Object-oriented programming changes that by allowing gigantic, complex programs to be assembled like Tinker toys. Programmers will use pre-assembled chunks of code to build 80 percent of their program thus saving an enormous amount of time and money.

The criticism Jobs received from building the NextStep computer was that he failed in trying to build a second computer empire. Jobs's goal was to produce a NextStep computer for $3,000 that would land on the desk of every college student. In designing the NextStep computer, he ignored the demands of the computer market. Even his own experts were saying, "Keep in touch with the intended customers and avoid the pitfall of anaerobic isolation; do not assume that the customers will pay any price to secure the latest computer technology; ease the way for customers to adopt a new standard by providing software and hardware bridges that help connect older machines to the new ones." According to developers, he disregarded every one of these lessons when he launched the NextStep computer.

In mid-1989, after long delays which Jobs was never blamed for, NextStep finally introduced a $7,000 monochrome system. The system had no floppy disk, virtually no useful software applications, and a slow magneto-optical disk. When the NextStep computer was introduced, the academic world and

corporate America rejected it. In the end, only about 50,000 NextStep machines were ever built, and in February 1993 Jobs announced that NextStep would stop producing hardware and focus all its energy on the NextStep operating system. The operating system was promised to run on a wide variety of platforms.

Jobs recruited an Englishman, Peter van Cuylenburg (age forty-four) as his number two person in NextStep to help promote the NextStep computer and organize the company's management. The company's management was decimated because in a few months, virtually all of NextStep's vice presidents had quit. Van Cuylenburg said the quitting of the vice presidents was due to his own toughness. He said, "I've put pressure on the company, and not everyone was willing or able to accept it. NextStep had too many vice presidents when I arrived, so Jobs and I decided to eliminate some."

Jobs and van Cuylenburg planned on releasing NextStep software to run on other companies' computers by the fall of 1993. NextStep did release a version of NextStep's operating system for PC's equipped with Intel's 486 microprocessor. Still, the market did not fully accept NextStep's operating system over OS/2 or Microsoft's MS-DOS.

NextStep had also talked with Hewlett-Packard, Sun, and others about licensing NextStep to run on their machines. These companies thought it was a ridiculous idea, because NextStep was trying to acrimoniously compete against them in hardware. Van Cuylenburg admitted that the scenario made sense only if NextStep's hardware business is small enough that the major players do not see NextStep's computers as a threat.

Jobs felt NextStep was moving slowly but surely toward being a software company that made great reference hardware. That is, NextStep will have had a machine that provided a benchmark of quality. The NextStep operating system will have been in a three-way race for the object-oriented operating system of the Nineties against Microsoft's Cairo project and Apple's and IBM's joint venture.

Considering that object-oriented software had become the key to NextStep's future, it is ironic that Jobs committed the company to it almost by accident. When NextStep introduced its first machine, the Cube, in 1988, it was incompatible with existing computers. The Cubes had virtually no software to run on them and Jobs urgently needed outside software developers to write programs for the Cube. He found the basis for his operating system in Carnegie Mellon University software called Mach, which happened to use object-oriented programming. Jobs' goal was not to ease programmers' lives; he just wanted to get some programs written and shrink-wrapped pronto so he could sell his NextStep computers.

NextStep squeezed its way into the field of being a good platform for companies to build object-oriented programming through a review done by CKS Partners. CKS Partners is a San Francisco advertising agency founded by a bunch of old Apple colleagues. Jobs' NextStep advertising agency needed help in promoting the NextStep because it boasted about the computer's hardware disk storage and processing chip technology, but gave no compelling reason for businesses to buy a NextStation. Jobs called on his old friends at CKS Partners to help his advertising agency out. CKS conducted focus groups of Fortune 500 managers in charge of information systems. They came up with the report there was little perception in the marketplace about NextStep, but important information came from a number of hard-core information systems geeks. They had discovered NextStep made it much easier and faster for companies' in-house programmers to customize software to handle important parts of their businesses. Rather than start from scratch, programmers using object-oriented programming can do much of the job by looking in a library of pre-existing software modules.

This was a good report to have about the qualities and benefits of using a NextStep computer. The companies could reduce time in developing software packages by having a pre-existing library full of code already written to handle specific operations. NextStep also provides an easy platform to create libraries, maintain and integrate the code in an object-oriented programing environment. The companies would see a solution to the problem of spending too much time and money in building software applications. Software developers could reduce their time in finding errors and maintaining their software, because object-oriented design allows a nice encapsulated structure, information hiding, and communication between modules through messages.

The company O'Connor Associates, a Chicago options and futures firm, claimed its engineers can write a complex trading program in three months with NextStep versus over two years on a Sun workstation. Corporate managers who ventured into using NextStep computers told NextStep, "You guys have one of the best products ever, but you do not even know it and you're not trying to sell it to us." Jobs recalls himself, "Companies came to us and said, "You're idiots, you just do not get it." Now that NextStep knew companies in the real world could solve problems faster with NextStep computers, NextStep needed to advertise better how their computer's performance and benefits could make companies more productive. So Next went to compare their system against their number one competitor, Sun Computer. The Company commissioned a study by management consultants Booz Allen Hamilton that showed that corporate programmers worked two to nine times faster on NextStep machines than on Suns and others. When Sun World magazine gave its highest rating not to a Sun machine but to the NextStation Turbo machine, a NextStep advertisement proclaimed:

NEXTSTEP CASTS SHADOW OVER SUN.

From the review reports, the company's sales had gone up, but NextStep had been forced to turn to its Japanese partner for cash infusions. Canon originally invested $100 million in 1989 and added another $10 million to $20 million in 1991 before extending that $55 million credit line last July in 1992. Canon held an 18% equity stake in NextStep and industry analysts said that the Japanese were increasingly scrutinizing their investment. The heat was on for NextStep to start producing high marginal returns from selling their NextStep products.

Jobs thought NextStep could survive as a software company when he attacked his old enemies, Apple and IBM. He did not think the Apple-IBM linkup would work. "Apple has a thousand software engineers who have realized that Taligent is their enemy." If Apple adopted IBM's Taligent software, Jobs explained, they're out of a job. Instead, he argued, if Apple would stick with its System 8, under development in-house, this would leave IBM as Taligent's primary advocate in the marketplace and place IBM in a bad position. Jobs admited that Microsoft has "market power" and saw Cairo as his main competitor.

Jobs felt his NextStep machines were going to be in high demand, because businesses have money and will pay big money for things that will save them money or give them new capabilities. Once businesses figured out how to use object-oriented programming to solve most of their design problems, they were going to buy NextStep computers.

Jobs thought the advantage of NextStep software compared to its rival Microsoft is its ability to design programs in an object-oriented design. Jobs perceived Microsoft Windows as a bad development environment, and Microsoft did not have any interest in making it better. The fact that it was really hard to develop applications in Windows plays to Microsoft's advantage. Microsoft developed their software so companies cannot have small teams of programmers writing word processors and spreadsheets because it might upset their competitive advantage. Jobs stated that NextStep will become the preferred platform for businesses to develop software. Therefore, NextStep software will out-compete Microsoft in programming languages used to develop applications.

Jobs thought object-oriented programming would allow small companies to build libraries containing already-built coded modules. These libraries would allow programmers to incorporate pre-existing modules to perform specific operations in their code. This type of programming technique would reduce time a programmer had to spend on writing code. The less time spent on a project, the more money a company saves. Since the library code had already been tested, programmers using the pre-existing code in their

programs have fewer errors. Fewer errors to fix in a program means less time spent on the program, which saves the company money. Jobs said NextStep software will literally let three people in a small business outperform what 200 people at Microsoft can do. Corporate America had a need to find a solution to their problems. Jobs felt NextStep software could make companies a lot of money.

Jobs believed Microsoft had not transformed itself into an agent for improving things or a company that will lead the next revolution in software development. Jobs had become very concerned because he saw Microsoft competing very fiercely to put a lot of companies out of business which was hurting innovation in the computer industry. Jobs felt the computer industry needed an alternative to Microsoft's software in computer systems. He hoped people would turn to NextStep software.

For further information on the life and times of Steve Jobs, check into his merger between NeXT and Apple at http://www.next.com/ and at http://www.apple.com/, or Steve Wozniak's website at http://www.woz.org/.

robert j. la follette
rjl@apk.net