History of Sun Microsystems

By Tom Kranz and Others

The history of reveals how important innovation and flexibility are to the success of a company. Innovation allowed Sun to build a company capable of taking the lead in its marker within the first few years of its incorporation and continue to grow dramatically. More importantly, Sun's flexibility and a willingness to adapt to changing environments enabled them to survive the bursting of the dot-com bubble that bankrupted so many tech companies. And both these traits - innovation and flexibility - allowed them to bounce back and recapture an influential presence in computer world.

Sun was incorporated in February 1982 with only four employees. For the next ten years, the company was mainly a hardware vendor selling workstations, but they did that single task quite well. They sold 68000 processor-based workstations running the Unix operating system, and using TCP/IP (now known as the Internet Protocol) at a relatively low cost. Five years later, they were winning the Workstation Wars of the 1980s and took the lead in the market. They maintained this lead into the early 1990s, when they expanded to servers.

The dot-com bubble of the 1990s led to booming business and dramatic growth for Sun Microsystems. New dot-com companies were starting up everywhere, creating a demand for expensive Sun-based server systems to handle high levels of web traffic. When the dot-com bubble burst in 2001, however, it hit Sun hard. Sales for hardware, Sun's primary market, dropped dramatically. No new dot-com companies were starting up and needing new equipment. Existing startup companies didn't need to upgrade their servers - when web traffic failed to meet their expectations, their existing high-end Sun servers could handle the existing load quite well. And as the dot-coms began to go out of business, their equipment was auctioned off, and suddenly companies needing high-end Sun servers could acquire them at a much lower cost than Sun was offering.

Finally, Sun was also facing competition from a new server farm strategy that used larger numbers of small, cheap servers running open-source operating systems (primarily Linux) instead of the traditional strategy of small number of expensive, high-end servers like the ones Sun produced. As a result of all these factors, Sun experienced several quarters of steady losses, their stock fell to less than a tenth of its peak value, and Sun was forced to close manufacturing plants and lay off employees.

In addition to massive cost-reduction efforts, Sun managed to weather the recession through flexibility, adopting its competitor's strategies and diversification of it products. Sun developed a powerful but low-cost 64-bit system to compete in the low-end server market. They began to compete in the open-source world by donating 1,600 patents to the global in 2005. Currently, Sun offers an open-source office suite (StarOffice and OpenOffice), an open-source version of Solaris (OpenSolaris), and turned their powerful platform Java system into an open-source project. Finally, they began to diversify their business away from mainly hardware and are competing in the 'Software as a Service' Market. In 2005, they expanded their 3000-CPU server farm used for research and development, and made it available for commercial use, selling processing hours and storage at affordable prices.

Today, Sun Microsystems retains an influential presence in the computing world. Their history demonstrates the importance of innovation and flexibility to a company. Innovation allowed Sun to grow quickly and dominates their market. Their flexibility with their products and willingness to adapt

to a changing economic environment allowed them to survive a recession. And both qualities allowed them to bounce back and stay ahead of the volatile and ever-changing tech market.

Company History:
Archrival of Microsoft Corporation, Sun Microsystems, Inc. focuses on network computing rather than desktop mainframes, designing and manufacturing its own software and hardware. A 1980s start-up company, Sun generated in excess of $10 billion in sales during the late 1990s, recording astounding success with its own computer chip, SPARC, and own operating system, Solaris. Sun pioneered the use of shared software and hardware components among competing workstation manufacturers in order to create industry standards. After making a reputation for itself as a designer of high-powered workstation computers and servers, Sun expanded its talents, positioning itself as an Internet and electronic-commerce specialist during the latter half of the 1990s. The company's seminal achievement was the introduction of Java technology, the first universal software platform that enabled developers to write applications once to run on any computer. The company maintained offices in 150 countries, selling its products and services to the telecommunications, manufacturing, education, financial, and government markets.

Founding
Sun began as a computer project designed by Andreas Bechtolsheim while he was a graduate student at Stanford. His computer was a modification of a relatively new kind of computer, the workstation, which, like the PC (personal computer), can be utilized by single users. The workstation, however, provides users with more power. Workstations are designed for network integration and equipped with high-resolution graphics, and are fast enough to handle demanding engineering and graphics tasks. Unlike the first workstations, which had been introduced to the market only the previous year by Apollo Computer, Bechtolsheim's workstation used off-the-shelf parts, thus making it more affordable.

Bechtolsheim not only shunned custom-made hardware, but also broke with the industry tradition of adhering to proprietary operating system software. Instead, he hoped to enable different workstation brands running on a common operating system to share data. AT&T's UNIX operating system was the obvious choice; it could operate on a wide variety of computers and was already very popular among scientists and engineers because it enabled users to perform several tasks on screen at once. He began selling licenses for his computer, called the Sun (which stood for Stanford University Network) at $10,000 each in 1981.

Within a year Bechtolsheim's project attracted the interest of Stanford M.B.A. graduates Vinod Khosla and Scott McNealy, each of whom had some experience in the computer business. They were named president and director of manufacturing, respectively, of Sun Microsystems, Inc., upon its founding in February 1982. Bechtolsheim, who was the brains behind the hardware, became vice-president of technology. One of the first people the founders hired was Bill Joy, a Berkeley Ph.D. well known for his design of a popular version of the UNIX operating system. His task was to design the company's software.

Sun's use of standard hardware components and standard operating system software produced short-term payoffs for the fledgling company. Sun's workstations, unlike those of industry pioneer Apollo, operated on UNIX and from the outset networked easily with the hardware and software already on

the market. In addition, although Sun's design could easily be copied, the strategy of using existing technologies allowed Sun to enter the market quickly with a low-priced machine. Sales grew rapidly as a result. Within six months of incorporation the company became profitable.

Sun's first workstations, the Sun-1 and Sun-2, were instant successes, achieving $8 million in sales the first year, 80 percent of which came from sales to the university market. Sun's founders, however, had their eyes on the mainstream technical market, dominated at that time by the major computer companies. Sun's first big success in this area was the contract it signed in its second year with ComputerVision, a major CAD (computer-aided design) systems supplier that had decided to drop its proprietary hardware in favor of a new platform for its software products. ComputerVision had decided to sign a contract with Apollo, but, aggressively courted by Sun executives, the company reversed its decision and accepted a counteroffer made by Sun. Thus, Sun established its reputation as a serious player in the computer business and simultaneously earned the envious wrath of its competitors.

Growth in the Late 1980s

Expanding rapidly, Sun moved out of its original location in Santa Clara to a larger building in Mountain View, which became its new headquarters. In January 1984 Sun opened its first European sales office. In that same year Sun established a subsidiary, Sun Federal, to serve the government market. By 1991 Sun Federal was shipping more than half the workstations ordered by local, state, and federal government. Sun's informal corporate culture attracted engineers from the top universities. At the same time Sun hired additional managers who had experience working at other leading computer companies. Also in 1984 McNealy took over as president, as Khosla realized his dream of being able to retire as a millionaire before the age of 30.

During this period Sun continued to promote open systems. In 1984 it began broadly licensing Joy's design of a distributed file system software, called NFS (Network File System), that allowed data to be shared among many users in a network regardless of processor type, operating system, or communications system. NFS soon became an industry standard. Sun was so successful with this strategy that in 1984 Apollo was forced to abandon its exclusive design and instead produce a system that operated with standard software.

Between 1985 and 1989 Sun was the fastest-growing company in the United States, according to *Forbes* magazine, with a compound annual growth rate of 145 percent. It had become a public company with its successful initial public offering in 1986. The following year Sun surpassed Apollo in sales, and by the close of that year it had become the leader in workstation sales. Only six years after incorporation Sun achieved $1 billion in annual sales. Part of the reason for Sun's stupendous early success was the fact that the product in which it chose to specialize, the workstation, was becoming popular just at the time Sun entered the market. Furthermore, because it was a workstation industry pioneer, it established strong relations with the most sought-after clients and the most important software developers. Sun's corporate strategy also enabled it to offer its new customers the latest technology, while its competitors had to support established clients reluctant to scrap their outdated computer systems. Industrywide, sales of workstations rapidly displaced those of minicomputers, and the large computer companies that sold these had to compensate by offering workstations as well.

Debut of SPARC: Late 1980s

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In the increasingly competitive market for workstations, where the speed of the computer is an important factor, Sun developed an even faster workstation in the late 1980s. Based on a different kind of microprocessor, this new product utilized RISC (reduced instruction set computing) architecture. RISC was simpler yet quicker than the then prevailing CISC (complex instruction set computing) architecture. As had been the case with the workstation itself, Sun was not the first company to design a RISC-based computer (IBM had introduced a model in 1986). Sun made improvements on it, however, and designed its own RISC architecture called SPARC (scalable performance architecture); it soon dominated the market of RISC-based workstations. In April 1989 Sun introduced its SPARCstation 1, a small, low-cost desktop computer with expanded capabilities. SPARCstation 1 employed new levels of integration and miniaturized the essential electronic components. By the end of the year Sun could claim to be the world's largest supplier of RISC-based computers, with the SPARCstation the most popular workstation on the market.

As Sun was not a manufacturer of its own processors or computer chips, in 1987 it licensed Bechtolsheim's SPARC design to a few silicon chip manufacturers, which then began to produce them for Sun's needs. Then, in keeping with its tradition of the "open system," in July 1988 Sun announced that it would offer its RISC design for license to other computer makers in recognition that for RISC to succeed it needed to become a pervasive presence in the marketplace. By licensing SPARC it stimulated low-cost, high-volume production of SPARC systems and thus increased the number of third party applications available. In 1989 licensing of SPARC was turned over to a new coalition of computer companies called SPARC International, an independent testing organization founded in nearby Menlo Park, California. McNealy hoped SPARC would produce the same kind of phenomenal growth for workstations that IBM brought to PCs a decade earlier when it permitted others to copy its standard PC hardware and software designs. In April 1991, however, Sun told its dealers it would prefer that they not sell SPARC clones. Sun claimed that small dealers would have difficulty succeeding against Sun in selling "clones" and were thus encouraging the smaller outfits to sell complementary "compatible" products, whereupon competitors charged hypocrisy in Sun's call for "open systems." Although it did not at first entirely convince other workstation companies to copy Sun's SPARC design, Sun was singlehandedly making SPARC one of the international standards. By 1992 all its new workstations were based only on SPARC.

As Sun was developing its SPARCstation computer, it was also making moves to ensure the presence of improved software to take advantage of it. In 1987 Sun signed an agreement with AT&T to develop an enhanced version of the UNIX operating system to make it the software standard for workstations. AT&T even took a 19 percent equity investment in Sun in 1988 (which it sold off in 1991 upon the NCR acquisition). The product that emerged in late 1989 established a de facto high-end UNIX standard (System V Release 4.0). It was at this time that competing computer manufacturers were settling on UNIX as a universal operating system, and RISC-based hardware proved the obvious supporting standard because of its speed in handling the complexities of UNIX and its suitability for the demands of the new user interfaces and applications software. Sun Microsystems, with its RISC-based SPARCstation and involvement in upgrading UNIX, was well-positioned to take advantage of the trend. "Sun is the strongest candidate to carry the UNIX banner. It has momentum. If it can keep up the recent good work, it can continue to dominate the workstation market," wrote technology consultant Richard Shaffer in *Forbes* in 1990.

Despite the success of the SPARCstation, the year of its introduction, 1989, marked a temporary financial setback for Sun. It lost money during the difficult product transition period by launching the new SPARCstation 1 while at the same time trying to support two older product lines using different technologies. Meanwhile, it was encountering difficulties managing the chaos resulting from its explosive growth. Problems included rapid personnel hiring and training, communications problems, and reorganization pains. A new management information system did not accurately forecast parts needed to fill orders, and demand for SPARCstation 1 was misjudged. That year Sun also temporarily lost its market lead in workstation shipments when Hewlett-Packard purchased Apollo and combined their market shares.

Things improved rapidly the following year. The company reduced its product families from three to one, the SPARC systems. The SPARCstation 2, released in November 1990, had the power of a minicomputer. The financial outlook improved, with revenues up by 40 percent over the previous year, and for the first time in a long while Sun was spending less than it was taking in. By the end of 1990 Sun claimed more than a third of the total market share of workstation shipments, leaving Hewlett-Packard a distant second at 20 percent. Sun held a similar share of the world market of RISC technology with its SPARC product line. As the market continued to grow, Sun aimed at expanding at a similar rate, maintaining the same market share. Meanwhile, its stock doubled from a low of $14 in August 1989 to $37 in July 1990.

At the beginning of the 1990s Sun further widened its market objectives for its workstations beyond engineers, software developers, and chip designers, targeting commercial users such as insurance companies, brokerages, airlines, and publishers. In the spring of 1990 Sun announced a new line of low-end products designed to capture an increasing share of the vast commercial computing market, which was dominated by minicomputers and high-end PCs. Sun became the first workstation producer to introduce a low-end system for under $5,000. A month later the company announced the first color workstation for less than $10,000. It also began distributing its products through respected PC resellers. Sun was able to persuade software publishers to adapt over 2,800 programs for SPARC computer systems by 1991, including such major programs as Lotus 1-2-3, WordPerfect, and dBase IV, thus substantially broadening Sun's commercial market. By the end of 1992, when over a third of Sun's sales were to commercial as opposed to technical markets, there were more applications for Sun workstations than for any other UNIX workstation.

Business strategies in 1990 included streamlining the organization into two core management groups. Custom job-shop manufacturing was eliminated, allowing high volume from a single, elegantly designed product line to permit Sun's manufacturing system to attain economies of scale. More of the working capital and investment risk was pushed onto outside contractors that produce the printed circuit boards, boxes, and screens, leaving Sun with the relatively simple tasks of assembly and testing. It stayed out of the lucrative high-end of the workstation market to build on volume and market share in the lower end. By the close of 1990 Sun was one of the top ten computer hardware companies in the country, but unlike most of the others, it sold only workstations and servers: it did not sell PCs, minicomputers, or mainframes.

Sun had in the past attempted to build a critical mass for its technology and establish a de facto standard in hardware. In September 1991 it aimed at a similar broadening of its influence in operating system software when it announced plans to make the Sun OS operating system, a version of UNIX,

run on more computers than just its own, including those running on Intel microprocessors. It was at this time that Kodak sold its UNIX software unit, Interactive Systems, to Sun. Interactive supplied UNIX System V release 4.0 for Intel-based computers, and thus the purchase of Interactive endowed Sun with needed expertise in the arena of Intel-based UNIX systems. Interactive had already previously agreed to install Sun's operating system, Solaris 2.0, onto Intel X86 architecture. With more computers using Sun's operating system, it would become easier to link Sun workstations with others in a network, and more software could be written for Sun's operating system. Sun needed a constant flow of new programs to keep its workstation sales booming, particularly now that it was facing challenges in hardware.

In 1991 Sun followed IBM and Apple by becoming a hybrid software-hardware company. This new strategy was an attempt to offset shrinking profit margins on hardware by selling software. A reorganization of the company transferred its software-selling operations to two new subsidiaries, SunSoft and Sun Technology Enterprises. SunSoft sold Sun's operating system to computer manufacturers, while Sun Technology Enterprises supplied software for SPARC machines, such as networking, printing, imaging, and PC emulation products. At the same time other core businesses and functions were also reorganized into subsidiaries. The largest of these was Sun Microsystems Computer Corporation, which McNealy headed in addition to his post of CEO of the parent company. Each subsidiary was set up as a separate profit and loss center having its own management to oversee product development, manufacturing, marketing, and sales.

By 1991 Sun's product line was beginning to show its age as competitors brought out machines superior in both price and performance. In the early 1990s the workstation market competition grew increasingly fierce, as it was one of the few areas of the computer industry still enjoying sales growth of more than 20 percent annually in 1991. One of the reasons for this growth was the RISC technology and the recent emphasis on serving the general business computing market. As Sun was trying to enter the office market, however, office computing companies such as IBM, Apple, Compaq, Digital Equipment, and Hewlett-Packard were pursuing the technical market, and Sun's move into the broader commercial computing market put it into competition with the bigger computer manufacturers on their home turf. Sun also reversed itself by moving into the high-end of the workstation market, where performance speeds were essential, using multiprocessors (two or more processors chained together) and special software. It introduced its first multiprocessor, the SPARCserver 600NO series, and new operating software for it in 1991.

By mid-1992, Sun had 21 subsidiaries around the world providing sales, service, and technical support, and overseas sales accounted for more than half of its revenues. Manufacturing was carried out at three sites: Milpitas, California; Westford, Massachusetts; and Linlithgow, Scotland. In February 1992 Sun became the first U.S. company to establish a significant presence in Moscow. Sun forged an agreement with a group of 50 Russian scientists, including the Russian scientist who had developed supercomputers in the Soviet Union, to work as contractors with the company.

Introduction of Java: 1995

Sun's tenth anniversary marked the conclusion of a decade of remarkable success, but not all industry experts were willing to bet that the company's second decade of business would be as successful as the first. With the enormous growth rate of the PC market and the proliferation of competitive workstations being offered by other manufacturers, Sun faced a difficult road ahead, industry pundits

explained, and would be hard pressed to sustain its growth rate throughout the 1990s. The experts were wrong. Sun recorded prolific growth in the years following its tenth anniversary, demonstrating enviable success by focusing on high-end servers priced from $500,000 and up. The most significant facet of the company's business, however, was the introduction of a new product in the mid-1990s that forced analysts to quickly change their opinion about Sun's growth potential. In mid-1995, Sun introduced Java, a brand name that stood for a programming language and a set of components and tools that allowed users to write software across any computer and operating system. The potential for Java was vast, exuding the universality McNealy had preached for years. In essence, Java represented a self-sufficient computing system, emulating all the functions of the computing device, regardless of the underlying operating system.

Following the introduction of Java, McNealy found a more receptive audience to his vision of a computer world based on networks supported by powerful, high-end servers, a vision that ran counter to the approach taken by Microsoft's founder Bill Gates. McNealy reveled in his attacks against Microsoft, both in the press and in court, as he fought against "Wintel," the duopoly held by Microsoft's Windows and Intel's processing chips. "The PC is just a blip," McNealy remarked in an interview with *Business Week* in 1999, dismissing the significance of the PC revolution led by Microsoft. "It's a big, bright blip, but just a blip. Fifty years from now, people are going to look back and say: 'Did you really have a computer on your desk? How weird.'" McNealy envisioned network computing as the future, a future in which the billions of computer chips in products ranging from refrigerators and telephones to smart cards and door locks would all be connected in a network.

By 1998, Sun's revenues had increased to $10 billion and its net income, after more than doubling since the mid-1990s, had reached $763 million. In keeping with McNealy's posture as an industry renegade, Sun operated as the only major hardware and software vendor without a cooperative relationship with Microsoft. Because of the company's independent stance, its corporate structure was reorganized in 1998 to better contend with competitors such as Microsoft. "Our goal," Sun's chief operating officer explained to *Electronic News* at the time of the reorganization, "is to align the organization more tightly and streamline internal processes so that we achieve greater operation efficiency and provide a unified face to the customer." The five companies that had operated as autonomous businesses were stripped of their independence and restructured into seven divisions focused on market segments and industries.

As Sun pressed ahead with turning McNealy's vision into reality, forging alliances with other companies ranked as a primary objective. To succeed in the long-term, the company needed to lead a counterrevolution and convince other computer manufacturers and electronics companies that the future was networks. Following America Online's acquisition of Netscape Communications, Sun signed a three-year alliance with America Online that bolstered Java's presence on the Internet. In 1999, Sun signed Java technology licensing agreements with Sony, Motorola, Ericsson, Samsung, Alcatel, Nortel, OpenTV, BEA Systems, Siemens-Nixdorf, and Scientific Atlanta. The last year of the decade also marked the introduction of a new software technology called Jini, which served as the cornerstone of McNealy's dream to link a vast array of electronic devices. Launched in January 1999, Jini technology eliminated many of the problems associated with connecting computers and other devices, such as printers, copiers, and fax machines, to a network.

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As Sun prepared for the 21st century, much of the company's long-term success depended on the widespread acceptance of McNealy's iconoclastic perspective. Toward this end, there were positive signs supporting the Sun vision. Tele-Communications, Inc., for example, was planning to use Java to deliver telephone service, bill-paying, and other services through television set-top boxes. Java also was attracting interest from manufacturers of consumer devices such as wireless telephones, smart cards, and video game consoles. Although the company had its fair share of critics, its ability to record robust growth while exploring alternative approaches to computing earned the respect of many. "If you want to know where the computer industry is going," an analyst informed *Business Week,* "ask Sun." Another analyst commented to *Business Week,* "There have been times when Sun seemed way out of sync, yet two or three years later, we see the rest of the industry moving in their direction." Whether or not McNealy's blueprint for the future would prevail remained a question to be answered in the 21st century.

Principal Subsidiaries: Sun Microsystems Computer Corporation; SunSoft, Inc.; Sun Technology Enterprises, Inc.; Sun Express, Inc.; Sun Microsystems Laboratories, Inc.; Java Software; Sitka Corp.; SunPro Inc.; SunSelect.

Sun Microsystems, Inc. (NASDAQ: JAVA)[4] is a multinational vendor of computers, computer components, computer software, and information technology services, founded on February 24, 1982.[5] The company is headquartered in Santa Clara, California (part of Silicon Valley), on the former west campus of the Agnews Developmental Center.

Products include computer servers and workstations based on its own SPARC processors as well as AMD's Opteron and Intel's Xeon processors; storage systems; and, a suite of software products including the Solaris Operating System, developer tools, Web infrastructure software, and identity management applications. Other technologies of note include the Java platform and NFS.

Sun is a proponent of open systems in general and Unix in particular, and a major contributor to open source software.[6]

History

The initial design for what became Sun's first Unix workstation, the Sun 1, was conceived by Andy Bechtolsheim when he was a graduate student at Stanford University in Palo Alto, California. He originally designed the SUN workstation for the Stanford University Network communications project as a personal CAD workstation. It was designed as a 3M computer: 1 MIPS, 1 Megabyte and 1 Megapixel. It was designed around the Motorola 68000 processor with an advanced Memory management unit (MMU) to support the Unix operating system with virtual memory support.[7] He built the first ones from spare parts obtained from Stanford's Department of Computer Science and Silicon Valley supply houses.[8]

On February 12, 1982 Vinod Khosla, Andy Bechtolsheim, and Scott McNealy, all Stanford graduate students, founded *Sun Microsystems*. Bill Joy of Berkeley, a primary developer of BSD, joined soon after and is counted as one of the original founders.[9] The Sun name is derived from the initials of the Stanford University Network.[10] Sun was profitable from its first quarter in July 1982.

Sun's initial public offering was in 1986 under the stock symbol *SUNW*, for *Sun Workstations* (later *Sun Worldwide*).[11][12] The symbol was changed in 2007 to *JAVA*; Sun stated that the brand awareness associated with its Java platform better represented the company's current strategy.[13]
Sun's logo, which features four interleaved copies of the word *sun*, was designed by professor Vaughan Pratt, also of Stanford University. The initial version of the logo had the sides oriented horizontally and vertically, but it was subsequently redesigned so as to appear to stand on one corner.
The first Sun workstations ran a Version 7 Unix System port by UniSoft on 68000 processor-based machines.

The "Bubble" and its aftermath

During the dot-com bubble, Sun experienced dramatic growth in revenue, profits, share price, and expenses. Some part of this was due to genuine expansion of demand for web-serving cycles, but another part was synthetic, fueled by venture capital-funded startups building out large, expensive Sun-centric server presences in the expectation of high traffic levels that never materialized. The share price in particular increased to a level that even the company's executives were hard-pressed to defend. In response to this business growth, Sun expanded aggressively in all areas: head-count, infrastructure, and office space.

The bursting of the bubble in 2001 was the start of a period of poor business performance for Sun.[14] Sales dropped as the growth of online business failed to meet predictions. As online businesses closed and their assets were auctioned off, a large amount of high-end Sun hardware was available very cheaply. Much like Apple, Sun relied a great deal on hardware sales.

Multiple quarters of substantial losses and declining revenues have led to repeated rounds of layoffs,[15][16][17] executive departures, and expense-reduction efforts. In December 2001 the share price dropped to the 1998 pre-bubble level of about one hundred dollars or so and then kept going, a rapid fall even by the standards of the high-tech sector at that time. The stock dipped below 10 dollars a year later, one-tenth of its 1990 value, then quickly bounced back to 20, where it has hovered ever since. In mid-2004, Sun ceased manufacturing operations at their Newark, California facility and consolidated all of the company's US-based manufacturing operations to their Hillsboro, Oregon facility, as part of continued cost-reduction efforts.[18] In 2006 Sun closed the Newark campus completely and moved 2,300 staff to its other campuses in the area.[19]

Many companies (like E-Trade and Google) chose to build Web applications based on large numbers of the less expensive PC-class x86-architecture servers running Linux, rather than a smaller number of high-end Sun servers. They reported benefits including substantially lower expenses (both acquisition and maintenance) and greater flexibility based on the use of open-source software. That trend is slowing and may be reversing,[citation needed] given (1) the throughput and efficiency of Sun's new horizontally-scaled systems (see below) and (2) the fact that both Sun's flagship Solaris operating system and its UltraSPARC T1 processor are now fully open-source.

Higher level telecoms control systems such as NMAS and OSS service predominantly use Sun equipment. This use is due mainly to the company basing its products around a mature and very stable version of the Unix operating system and the support service that Sun provides.

Present focus

In 2004, Sun canceled two major processor projects which emphasized high instruction level parallelism and operating frequency. Instead, the company chose to concentrate on processors optimized for multi-threading and multiprocessing, such as the UltraSPARC T1 processor (codenamed "Niagara"). The company also announced a collaboration with Fujitsu to use the Japanese company's processor chips in mid-range and high-end Sun servers. These servers were announced on April 17, 2007 as the M-Series, part of the SPARC Enterprise series.

In February 2005, Sun announced the Sun Grid, a grid computing deployment on which it offers utility computing services priced at $1 (US) per CPU/hour for processing and per GB/month for storage. This offering builds upon an existing 3,000-CPU server farm used for internal R&D for over 10 years, of which Sun markets as being able to achieve 97% utilization. In August 2005, the first commercial use of this grid was announced for financial risk simulations which was later launched as its first Software as a Service product.[20]

In January 2005, Sun reported a net profit of $19 million for fiscal 2005 second quarter, for the first time in three years. This was followed by net loss of $9 million on GAAP basis for the third quarter 2005, as reported on April 14, 2005. In January 2007, Sun reported a net GAAP profit of $126 million on revenue of $3.337 billion for its fiscal second quarter. Shortly following that news, it was announced that Kohlberg Kravis Roberts (KKR) would invest $700 million in the company.[21]

In recent years Sun's engineering work has become international, with substantial groups in Bangalore, Beijing, Dublin, Grenoble, Hamburg, Prague, St. Petersburg, Tel Aviv, Tokyo, and Trondheim.[22]

In 2007–2008, Sun posted revenue of $13.8 billion and has $2 billion in cash. First-quarter 2008 losses were $1.68 billion; revenue fell 7% to $2.99 billion. Sun’s stock lost 80% of its value November 2007 to November 2008, reducing the company’s market value to $3 billion. With falling sales to large corporate clients, Sun announced plans to lay off 5,000 to 6,000 workers, or 15-18% of its work force. It expects to save $700 million to $800 million a year as a result of the moves, while also taking up to $600 million in charges in the next 12 months.[23]

A weekly summary of news about Sun and its products is posted to "System News for Sun Users", [24] now in its 10th year.

1982: Getting Started

Incorporated in February 1982, with four employees: Scott McNealy, Vinod Khosla, Bill Joy, and Andy Bechtolsheim. All four the original founders of SUN. The name SUN orinally is an acronym for the Stanford University Network
First workstation introduced. It includes TCP/IP, now known as the Internet protocol suite.

1983: First Big Break

Sun and Computervision sign a $40 million OEM agreement.
Operations begin in Europe.

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1984: The Big Idea

NFS™ technology introduced and licensed free to the industry. It's destined to become the industry standard for network file sharing.
Khosla's performance as CEO led to his leaving Sun

1985: Shining Brighter

"While other companies are still shivering from the sudden cold snap, Sun Microsystems is shining brighter than ever."

- Computer Systems News

Sun opens Canadian operations.

1986: Extending the Enterprise

PC-NFS™ technology introduced. It brings the power of network computing to PC users, and opens a whole new market for Sun.
Sun has a wildly successful initial public stock offering.
Sun begins operations in Asia and Australia.

1987: Big Business

Sun and AT&T lay the groundwork for business computing in the next decade with an alliance to develop UNIX(R) System V Release 4.
Sun takes lead in workstation market.
Sun connects to Internet.

1988: Getting Bigger

Sun reaches $1 billion in revenue--the fastest rise ever for a computer company with a direct sales force.
"Words fail to describe how successful Sun has been. For a company to grow at that rate is just incredible."

- Robert Herwick, Hambrecht & Quist

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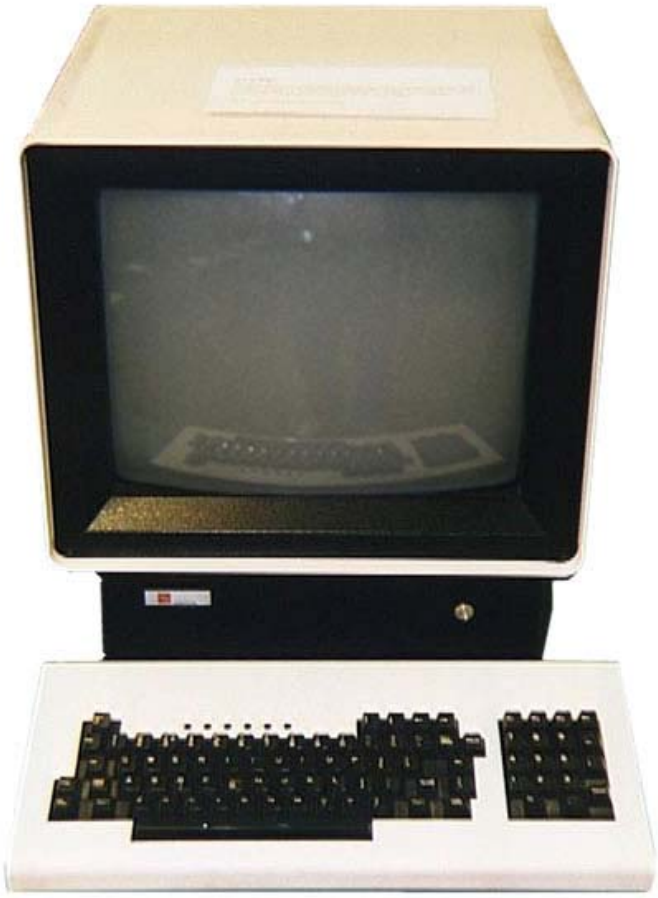
1989: Welcome to the New World

SPARCstation™ 1 system introduced. Features are so tightly integrated it fits in a 3- by 16- by 16-inch enclosure--the first "pizza box."



Sun's expanded alliances with Informix, Ingres, Oracle, and Sybase set the stage for our emergence as the number one database platform.
Sun opens research and development center in France.

1990: Making Power more Affordable

Sun follows up on the success of the SPARCstation 1 with four new models--including the first workstation for under $5,000.
Manufacturing plant opens in Scotland.

1991: Setting New Standards

Sun's market share in RISC--the world's fastest, most powerful computing architecture--hits 63 percent.

More than half a million systems shipped to date.
Sun unveils Solaris™ 2 operating environment, specially tuned for symetric multiprocessing.
Operations begin in Latin America.

1992: Making a Name for Ourselves

Leading the desktop performance race, Sun introduces the SPARCstation 10 system, the first multiprocessing desktop computer.
Sun's name appears on Standard & Poor's 500.
Sun ships more multiprocessing UNIX servers in a single year than any other vendor shipped in its history.

1993: One Million and Counting

In just over 10 years, Sun reaches an incredible milestone--one million systems shipped.
Sun makes its debut on the Fortune 500.
Years of leadership pay off: Sun, IBM, HP, and others unify UNIX system software.

1994: Enterprise Computing Comes of Age

Sun stages the Enterprise Computing Summit--a week-long multimedia event and conference showcasing our network computing expertise.
Sun's external home page, www.sun.com, goes online.
As the exclusive computer supplier for the 1994 World Cup, Sun enables hundreds of thousands of soccer fans to tap into the Internet for up-to-the-minute information.
Revolutionary computerized retrofit of the Golden Gate Bridge in San Francisco uses structural analysis with 3-D animation on Sun™ workstations and servers to dramatically reduce costs while improving public safety.

1995: The Java Technology Revolution Begins

Sun introduces the first universal software platform, designed from the ground up for the Internet and corporate intranets. Java technology enables developers to write applications once to run on any computer.
More than 100 Sun systems are used to render images for Disney's "Toy Story," the first all computer-generated feature film.
Sun and third-party associates reach another milestone--10,000 solutions on the SPARC™/Solaris™ platform.
Sun offers downloadable try-and-buy software on the Internet.
SunSolve Online℠ provides technical support via the Internet.
Sun receives ISO 9001 certification for quality in all major country service organizations, and ISO 9002 certification for all worldwide manufacturing operations.

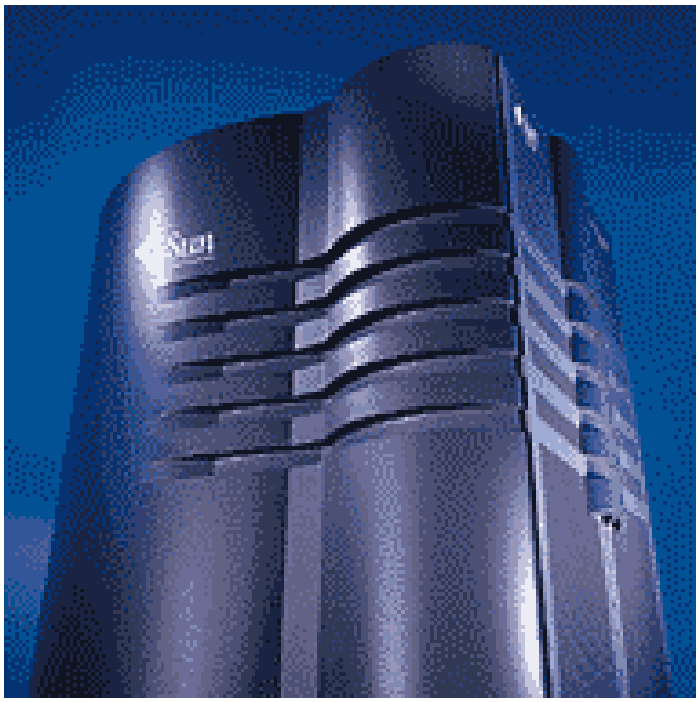
1996: At Home in Cyberspace

To stage "24 Hours in Cyberspace," the largest online event in history, Against All Odds Productions turns to the one company with more Internet and intranet experience than any other: Sun.
Sun Ultra™ workstation family introduced. Features the 64-bit UltraSPARC™ processor with on-chip multimedia, graphics, and imaging technologies.
Sun licenses Java technology to all major hardware and software companies.

Sun and the House of Blues deliver interactive entertainment to Olympic spectators in Atlanta and around the world via the Internet.

1997: Reaching New Heights

Using Java technology, NASA engineers develop an interactive application allowing anyone on the Internet to be a "virtual participant" in the space administration's groundbreaking mission to Mars.
Sun's new server family introduced. Includes the 64-processor Sun Enterprise™ 10000 server with the processing power of four mainframes.
Sun becomes the first systems company ever to demonstrate the best TPC-C performance on all four leading database platforms.
Web-enhanced Solaris environment introduced. With more than 100 enhancements, this release substantially increases the software's Internet performance.
Sun StorEdge A5000 system introduced. It is the industry's only second-generation fibre-channel disk array.
Sun becomes the number one supplier of UNIX multiuser disk subsystems.



1998: Setting New Standards

Sun redefines storage for the network age with an Intelligent Storage Network™ architecture that delivers mainframe-class reliability, virtually unlimited expandability, and cross-platform information sharing.
Say hello to instant networking. Sun's latest breakthrough, Jini™ technology, enables all kinds of devices to connect to the network-- instantly. Just plug it in, and it works.
Solaris 7 operating environment raises the bar for network software. Advanced 64-bit technology delivers dramatic increases in performance, capacity, and scalability.

America Online acquires Netscape; Sun and AOL to accelerate the growth of e-commerce and develop next-generation Internet devices in a historic three-year alliance.
Next generation of Java technology introduced. Java 2 software delivers more speed, more flexibility, and a complete set of foundation classes.

1999: Positioned to Win

With offices in 150 countries, Sun is a $9 billion global leader in network computing.

Our highly responsive service division supports more than a million systems worldwide.

Our long-standing relationships with the industry's leading software providers and systems integration firms ensure a comprehensive portfolio of enterprise-wide solutions.

More than 900,000 programmers are developing innovative Java applications.

More than half the medium to large companies worldwide are using Java technology.

More than 75 authorized Java Center[SM] facilities help companies around the world implement Java solutions.

2001

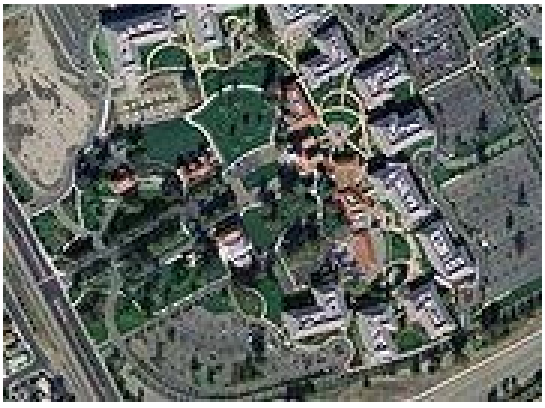
The internet bubble or Dot Com buble bursts, many companies are experiencing great difficulties to keep afloat. Nothing dfferent for Sun

2002

Sun reports losses again due to the demise of the dot com bubble.

2004

Factors like the 12 concequetive quarterly losses, the drive to make Jave a world standard, and law suits against Microsoft went nowhere, were behind the announcement in April 2004 that Sun and Microsoft were calling a truce. Microsoft would pay Sun $2 billion to resolve lawsuits, and the two companies agreed to work toward making their technologies more compatible.(3)



History of Sun Microsystems

By Tom Kranz and Others