



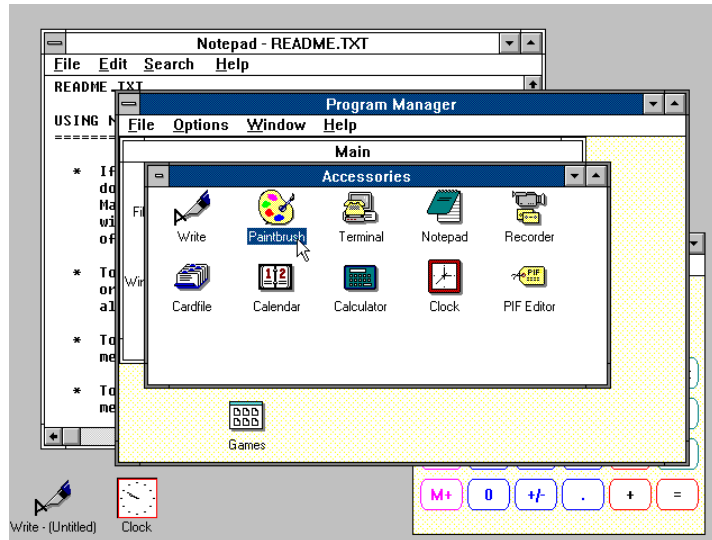
## THE OUTER EDGE

Tall IT tales from the  
Brink of Sanity

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## History of Silicon, Part Two New Windows for a New Decade



Windows 3.0 came to market in 1990. Everyone could see that Microsoft's new production looked a lot like those from the Apple Opera Company, but Apple's leaders had enough of lawsuits. Instead, they dismissed Windows as yet another clumsy attempt to copy their best ideas. The GUI lacked elegance, they said, and the Windows still tended to fall off their hinges when given a decent workout.

Despite their faults, these Windows were a big advance on the previous version. Big Blue was quick to see that there was more to these Windows than frames and hinges: the shell of a complete new house which looked remarkably familiar to that of OS/2. Remnants of DOS lay buried in the foundations, but Windows 3.0 could at last run several applications at once, instead of one at a time. (Like the average male, PCs of the time struggled when handling more than one task at a time, but that was now a hardware limitation waiting to be overcome).

The giant saw that he'd been deceived and tore up the agreement he'd signed with Brainy Bill for joint OS/2 development. Big Blue didn't punish Lucky Bill as he would've done years ago – he didn't even sue Microsoft. The former giant had lost much of his power and had trouble adapting to the changed circumstances. He also knew that in OS/2 he had a far better operating system than Windows, and he believed that the corporations and governments that were his clients would see this and stay loyal to him.

### The Show Must Go On

The folks at Apple were busy celebrating the success of their latest production: the PowerBook 100. Their previous attempt, the [Macintosh Portable](#), was so heavy that only Wagner's Siegfried could've lifted it without doing himself irreparable harm.



For the new version, Savvy John had brought in some industrial designers who'd helped Apple make the new PowerBook a production of great beauty that astounded the people of Silicon.

The talk in the taverns was that the Apple Opera Company, despite its fruitless flirtation with gravity, still had plenty of creative talent among its ranks. But once again, the opera company's sales projections proved wrong and many tickets to see the PowerBook 100 ended up being sold off at a discount or given away to charities. Tickets for other productions weren't selling well either but, with margins still on the luxurious side, the company was making enough money. Only insiders knew how

many projects had failed to bear fruit, or that the opera stage was in need of a rebuild. OS 7 was more than a match for Windows but wasn't stable enough to stage large-scale operas like the Ring Cycle. Worse, plans for new productions were vague and muddled.

Savvy John's lieutenant Mike Spindler brought Ian Diery into the company from faraway Australia, where he'd made a reputation playing rugby. That move puzzled many people but some said a rugby player might help bring a sense of reality to the opera company.

With a creaky stage and no fresh productions ready to launch, Savvy John told the council that Apple should team up with a strong ally. Sun looked like a good fit, with the fast SPARC cpu and a stage-tested version of the Unix operating system. Sun was more than keen to team up but just as the deal looked set, Big Blue made Apple a counter offer that included the Power chip and a joint venture to build a new operating system. Apple's leaders were so flattered by the former giant's overtures that they told Sun the deal was off.

### Mighty Minis

With Microsoft eating into their territory, the mini makers had no place to go but up against Big Blue in his remaining strongholds - banks, insurance companies, government agencies and Defence.

To protect his heartland, the former giant had begun making minicomputers of his own - that was where the Power chip he'd offered Apple came from.

The mini makers upped the ante with multi-processor RISC designs that set new records for processing megaflops (not Failed Large Opera Productions but Floating Point Operations Per Second). Makers who'd once argued that small was beautiful now made systems that filled whole rooms. They could handle huge databases, crunch scientific problems and process data faster than McDonalds churned out hamburgers.



In 1991 Linus Torvalds, then a student at the University of Helsinki, wrote a desktop version of UNIX called Linux, but it was soon beset by the same 57 versions as mother UNIX since any programmer could get access to the code and modify it. Open systems were a nice idea, and especially good for Brainy Bill who knew what business users really wanted: software based on predictable standards and norms.

PC networks were also eating into the market for minicomputers, with PC servers supporting networks of PCs that handled the daily office chores. The servers controlling these LANs were big PCs but, when fully configured, they began to resemble minicomputers. They ran Windows NT and supported Back Office applications previously handled by minicomputers, like file, print and application serving.

Mini-computer makers looked at this trend with growing unease. Microsoft was advancing across a broad terrain with the inevitability of molten lava. The threat of being pulverized forced the UNIX chiefs work together for the first time: Sun, HP, IBM, Digital, AT&T Bell Labs and SCO formed an alliance and agreed on a common set of UNIX standards.

### The Steamroller

By the early nineties, Brainy Bill had convinced most PC makers that Windows was the standard operating environment their customers demanded. He also told them that every new version of software Microsoft made would be more bloated than the current one, assuring the makers of buoyant new PC and upgrade sales. Bill offered them Windows at very attractive rates and bundled more and more programs with the OS.

The PC makers were thrilled because people had to buy ever more powerful hardware, but software makers soon claimed that Microsoft was engaging in 'predatory' bundling. Some sought justice in the

courts charging that, by preloading PCs with cheap or free software, Microsoft was attempting to kill off its competitors.

One of the companies that feared for its life was Novell, which had the lion's share of the LAN market. If Bastard Bill (as they called him) decided to bundle LAN-Manager with the Windows it shipped to business clients, it could mean the end of Novell, a company that had staked its whole future on PC networking.

That was exactly what Brainy Bill had in mind, despite the assurances of his lawyers that predatory bundling was merely clever marketing. Court battles had never done Bill any harm and, by now, even taking on the government of Silicon held no terror for him.

### Appletalk

At the Apple Opera Company, ridicule of Microsoft gave way to fear and the council formed an alliance with the former giant and Motorola (dubbed AIM for Apple IBM Motorola). Their first project was the Power-PC chip but, as always, the opera company was loathe to put all its apples in one basket.

Intel's boss Andy Grove also feared Brainy Bill's growing power in the PC market and was more than receptive when Savvy John raised the prospect of porting the Mac's OS to Intel's new 486. The highly secret project went under the code name of Star Trek, which might've suggested pie in the sky but Apple's engineers apparently came very close to baking Apple pie spiced up with Intel chips.

Sadly, Savvy John had become fascinated with a new pursuit: Bill Clinton's election campaign. He spent much of his time roaming the country, warming up crowds for Bill. That left Mike Spindler and his lieutenant Ian Diery in day-to-day charge of the opera company. They oversaw the release of several new models that included the Mac Classic, which sold for less than \$1,000. The price was right at last, but the new productions lacked freshness and originality, and now Apple's margins began to suffer from the lower ticket prices.

In 1993 the Newton was at last ready for the stage, but the production did not charm audiences and dropped to the ground with a dull thud. The Newton was the opera company's most avant-garde effort as well as the most costly, and Savvy John took it hard.

With no new productions in the pipeline, he did what Big Blue's and Microsoft's PR people had done for so long: talk about big ideas as though they were productions scheduled for imminent staging. The foremost of these was Taligent, a radical new opera stage to be built with the help of Big Blue. No one knew if Taligent was a pop musical or a classic opera in modern dress, but it kept people guessing and talking about Apple and that was a good thing.

That didn't help stem the steady decline in profits, so one day the council summoned Savvy John before it to tell him that he wasn't so savvy after all. They gave him back his Newton and asked him to leave the colony. Then they appointed Mike Spindler as CEO, told him to clean up the rabbit warren backstage and sell the company to the highest bidder. The first thing Spindler did was to can the Star Trek project.



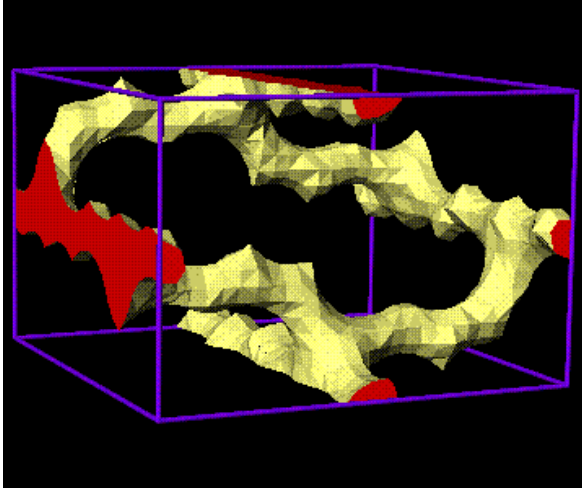
### Power to the People

Workstations were a booming niche market for mini-computer makers during the early 1990s. Silicon Graphics Inc. was one of the first to put 3D modelling on the desktop. In 1993, SGI bought MIPS, and the combination of advanced RISC architecture and graphics capabilities created a new market: Hollywood. SGI machines helped make movies like Jurassic Park, Terminator 2 and The Mask.

SGI carved out a new market for itself in film, TV advertising and post-production studios. The lure of 3D modelling and virtual reality excited all who saw it.

More serious applications awaited workstations in medicine, surgery, biochemistry, molecular biology, geomorphology and archaeology.

These fields of human endeavour, made more accessible with the best technology available, were niche markets at best. For every scientist who needed a workstation, there were a hundred office workers and bank clerks who needed no more than a basic PC.



Workstation makers kept looking for additional more niche markets, and finding them: In 1995, Team New Zealand used Silicon Graphics workstations to give Black Magic a winning trim in the America's Cup competition. The Kiwis had set up a brace of SGI workstations in their shed by the dock, while the American team had to transmit their data back to San Diego for processing on a Cray supercomputer.

### The Killing Fields

There was no one left in the broader land of Silicon who could stop Brainy Bill's ascent to total dominance, the way Novell's CEO Ray Noorda saw it, so paid the future king a visit to negotiate a peace agreement. When Ray discovered that Bill was doing deals behind his back even as they spoke, he returned to the salt lakes of Utah and told his people that war with Microsoft was inevitable. He added that Novell would have to bolster its meagre forces to stand any chance of survival.



Noorda was an old eccentric known as Rumpel Ray because he bought his suits at K-Mart, drove an old Ford Bronco and flew economy class, always making sure he got a pensioner's concession. His personal worth at the time was about half a billion dollars yet he spoke plain words and looked like a kindly country doctor, so people tended to underestimate him. It was an act that charmed and beguiled all who met him, except for the future king to whom charm was an irrelevant distraction.

Rumpel Ray had made Novell very rich and now he used the war chest to turn the company into a force to be reckoned with. He bought [Unix System Laboratories](#) from [AT&T](#), and with it the rights to the [Unix](#) operating system. Next he talked to the linguists at Wordperfect who were ready to join Ray in battle as they'd fallen on hard times after Microsoft Word became the standard on corporate desktops.

Ray also approached Borland and offered the company a lot of money for Quattro-Pro, its spreadsheet package. The people at Borland were delighted as they too had fallen on hard times after Microsoft Excel pushed them out of many accounts. Finally, the country doctor from Utah visited old DR DOS on the west coast and offered him \$50 million for a product most people had forgotten about.

Now Novell had two extra companies, two operating systems and two former killer apps. This would've been a great strategy in 1984, but ten years had gone by and a lot had changed – perhaps Rumpel Ray had lost sight of that. Some people said he'd lost more than his sight.

These days, Provo Utah is better known for Sundance, the place in the nearby hills where fine dramas are shown to appreciative audience every year.

Few dramas on celluloid could rival the events that played out on Novell's stage downtown. While Ray's generals struggled to integrate thousands of new troops into Novell's ranks, Brainy Bill devised a simple plan to defeat them: all of Novell's current software relied on Windows and, without up-to-date drawings of their ever-changing design specs, Novell couldn't adapt its software to newer versions.



Late in 1994, Novell took Microsoft to court, accusing it of foul play. The charges ranged from withholding critical technical information about Windows to putting new locks on Windows designed to keep Novell out.

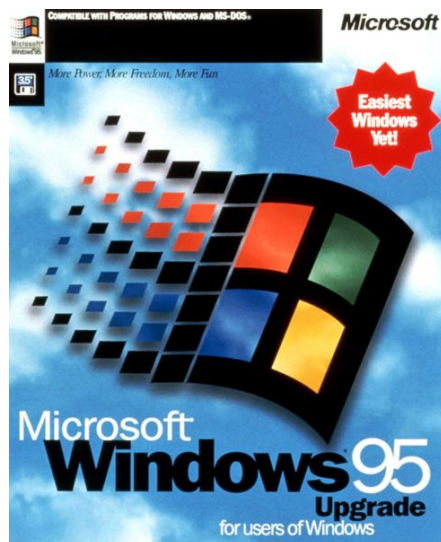
### New Horizons, New Wars

Brainy Bill had lost many lawsuits yet none of them had done him any harm, give or take a few dents in his massive war chest. He'd paid all the fines and just kept on doing what he'd always done: copy or buy the best ideas in the marketplace and hire the best brains money could buy. So he did to Novell what he always did: instruct his lawyers to drag the battle out for as long as they could, knowing that this would eventually drain the life force out of his enemy.

While Novell went the way of all the others who'd fought Microsoft in the courts, a new dimension of computing opened via the World Wide Web. Tim Berners-Lee made a network built for academic institutions accessible to a wider audience. At first, only machines running Unix had access to the Internet but that changed when young Mark Andriessen designed a browser called Netscape that worked on PCs.

At first, few people realized the full potential of the new dimension. In fact, the World Wide Web took even Brainy Bill by surprise but he wasted no time laying claim to this new world of endless horizons, ordering his architects to build a new door that would go with his Windows. The first door called Internet Explorer was very crude but bundling it with Windows put a swift end to the upstart Netscape ([Browser Brawls – Part 1](#)).

Microsoft used the time Novell wasted in its court battle to build Windows 95, a mostly 32-bit operating system based on NT. Windows 95 also had built-in networking support, which drove a final stake into Novell's heart.



Microsoft promoted Windows 95 with a \$300 million campaign that flooded TV, radio, newspapers and magazines across the globe. Improved versions of Word and Excel followed, which dealt killer blows to Wordperfect and Quattro Pro, and made the flower people of Lotus wilt from the heat.

In 1996, Novell capitulated. The company sold WordPerfect and Quattro Pro to Corel for \$170 million dollars, a little over 10% of what it'd paid for them two years earlier. Microsoft's armies returned from Utah's high desert to the plush green hills of Redmond to celebrate yet another victory

### Selling the orchards

By now the Apple Opera Company had sunk into a deep melancholy. Its productions lacked flair and the scripts seemed devoid of engaging plots. Worst of all, they cost small fortunes to stage and, for the first time, the colony was losing money on almost every show.

Spindler's answer was to cut the perks of the highest-paid stars, along with the bonuses and pay rises of middle-ranking ones. Having to share dressing rooms was too much for some stars who left the opera company for good. Even the workers backstage lost some of the little perks they'd long taken for granted. Water coolers were the first to go, followed by pot plants, then the cafeteria began charging for apples which had always been free. Then the employee fitness centre started charging for use by staff.

Even the PowerPC that became the core of all new Apples didn't bring the hoped-for revival, as it badly needed a new operating system to make it shine. But, with OS/2 riding a final wave of unexpected popularity, Big Blue had lost interest in that part of its bargain.

A new operating system was a Wagnerian effort the Apple Opera Company was no longer capable of staging on its own, now that all its Helden Tenors had gone. As the company's stock fell to an all-time low, interest in buying Apple ran high once more. IBM, Sun, Silicon Graphics and even Oracle made offers, but Mike Spindler turned them all down in the forlorn hope of a better deal.

None came and he began to lay off staff. Morale sank to a new low when Sun put in a derisory offer that reflected the parlous state of the opera company. The offer offended the council so deeply that they rejected it.

New PowerBooks with PowerPC cores were put on show and big ticket sales were expected of them, but their hinges tended to break and their Sony batteries were prone to explode. The new productions got poor reviews in the press and the hoped-for Apple revival did not come about. The year 1995 turned out so bad for the company that the media raised the spectre of Apple going bankrupt.

Spindler announced more lay-offs and soon employees of the opera company made bets on who would be next on Spindler's List. The council had enough of it and told Spindler that his name was on top of the List and replaced him with [Gil Amelio](#) from National Semiconductor. He tidied up Apple's schedule of productions, reduced the number of operas in preparation and cut costs by staging productions in simpler settings. Sadly, none of this stopped the company losing money.

### NeXT

In nearly a decade on his own, Big Jobs had sold just 50,000 gorgeous NeXT computers with brushed magnesium cases. They might've been the most desirable of Personal Computers, but very few people could afford the desire.

In 1994, Big Jobs decided to concentrate on his slick software (NeXTstep) and development platforms others could build software on. [Tim Berners-Lee](#) did his [World Wide Web](#) development on a [NeXT](#) workstation and suddenly Big Jobs was back in the news.

Among the parties interested in NeXTstep were SUN Microsystems and Apple. The Opera company was desperate to find a new production that would stop it losing money and used the last of its cash reserves to buy [NeXT](#) for \$402 million in 1996. Suddenly, Big Jobs found himself back in the colony he'd started, as its interim leader. His operating system would become the seed for [Mac's future OS X](#), but his first act was to alienate the few remaining loyal Apple fans by signing a peace treaty with the man they hated most: Brainy Bill.

### Dreamworks

The mini makers had underestimated the capacity of Intel to make serious chips. During Intel's embarrassing floating point episode in 1994, they'd joked that Intel couldn't count, but Intel fixed the problem and kept cranking up the Pentium's clock speeds. In 1995 Intel announced the Pentium Pro, and its design was clearly optimised for 32-bit server and workstation applications, computer-aided design, mechanical engineering and scientific computation.



The workstation makers suddenly had to work hard to stay ahead of the PC chip upstart. Some began making supercomputers, a territory once occupied by Cray Research, Deep Blue and others.

Silicon Graphics had combined power and graphics to spectacular effect when it enabled Dinosaurs to come back to life in Jurassic Park. Disney, Lucas and Spielberg soon saw that SGI's machines could deliver whatever they dreamt up. No longer did they have to re-create ancient Egypt in the Mojave Desert – now they could do it in the studio on computer screens.

The new digital effects tools gradually replaced the pencils and paintbrushes of the old studio artists. Toy Story was the first animated motion picture made entire on computers (Sun Sparcstations).



### End of the dream

Brainy Bill wanted to dominate that market too and ordered his willing army of independent software authors to write programs for 3D modelling, and yet more software for creating and editing audio and visual effects. It wasn't long before SGI and Sun saw their workstation business eaten into by inflated PCs with deflated prices.

SGI decided to go further upmarket in search of its future. This time the company took on a real Dinosaur: Cray Research, the maker of supercomputers used by NASA and Defence and serious scientists intent on solving mankind's problems. SGI already built multi-processor systems that could do the same job for far less money but it lacked serious credo in this market. Cray Research was a venerable institution, an exclusive club for the supercomputing elite.

After acquiring Cray, SGI realized that the dinosaur had little left to offer but its brand and a confusing array of disparate architectures.

SGI tried to reduce the load on its digestive system and sold off Cray's Superserver business to Sun, where it promptly flourished as the [Enterprise 10000](#) range. It took almost a decade for [Intel](#)-based systems to approach the performance of the systems Sun picked up for a song.



While SGI lay in the shade like a snake digesting an oversized meal, King William wooed Hollywood and the New Media market with new software and ever faster Intel PCs. By the time SGI snapped out of its postprandial torpor, the company had lost its most profitable market and most of its stock value. SGI never managed to integrate the two computing cultures and in the year 2000 sold Cray off to [Tera Computer Company](#), which became Cray Inc.

Other minicomputer makers lost their way as well. DEC, once the number 2 computer company in the land of Silicon, had been slow to embrace open technologies like UNIX and paid the price for relying too long on its shrinking user base. Even new systems based on the hot ALPHA design could not stop the losses. By 1997, DEC was forced to cut off vital body parts in order to survive.

The Alpha design was sold to Compaq the following year, along with most parts of DEC. The sale of Digital's Semiconductor chip division to Intel was sweet revenge for Andy Grove and sweet irony for Brainy Bill. The final sweetener was Compaq's decision to sell the Alpha architecture to Intel in 2001. That was the end of a once great line.

Compaq had bought Tandem and DEC to get a foothold at the high-end of the computer market; now Hewlett-Packard bought Compaq to make sure it could compete in the low-end PC market. Sun fought on alone, while Novell tried hard to find a new role to play on a new stage.

Both IBM and the Apple Opera Company left the stage to Microsoft after signing peace treaties, so the people of Silicon had little choice but to line up along the streets to celebrate King William's coronation.

The King announced that, from now on, the land of Silicon would be known as the Kingdom of Windows.

Some say that Basic Bill became the King of Silicon because he was shrewd, ruthless and extremely lucky. Others say that it was the colossal mistakes Bill's competitors made and kept making that opened a gap he was merely smart enough to exploit. Others again say that the people of Silicon, like the people of many other countries, ended up with the government they deserved.



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