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HELLO, WORLD

The Early Search Engines and Yahoo

Soon after *HotWired*'s launch at the end of 1994, it was estimated that the number of websites in the world had passed 10,000.[1] But even though "professional" sites like *HotWired* and Pathfinder were beginning to proliferate, the vast number of websites and webpages remained random, even individual, affairs. Most of the early websites had to publish wherever they could, and that often meant piggybacking on existing academic or corporate websites. It wasn't until 1995 that individuals were broadly allowed to register their own .com domain names.[2] So, if you wanted to visit Apple's website, you could go to www.apple.com. But if, say, you were looking for Gabriel's HTML Editor List to find good HTML-authoring software, you had to browse to http://luff.latrobe.edu.au/~medgjw/editors/. If you wanted an online tarot card reading, you had to type in http://cad.ucla/edu/repository/useful/tarot.html.[3] This inscrutability combined with the web's vastness and anonymity presented a tree-falling-in-the-woods sort of problem. Anyone could now publish anything; but if you did, how would anyone ever know about it?

And so, necessity dictated that search engines would become the most popular and most important early websites. And because the problem of a business model had been solved by *HotWired*, search sites, and Yahoo in particular, would become the web's first great companies.

There were many different early web search engines and tools, and they all had varying degrees of utility.* The not so secret truth about all the early search engines was that they weren't very good. They returned results in a way that could be comprehensive, but often had no accuracy. A search for, say, "windsurfing" might give you a list of every webpage in the world that mentioned the word "windsurfing," but made no effort to sort for context. What was the best windsurfing site on the web? The search engines had no way of telling you. A more refined search for, say, "windsurfing in California" might return sites for windsurfing *or* California, but maybe not both. The searcher might find the State of California's official government site at the top of the list, or a site for a windsurfing company in Hawaii.

The cause of these poor results came down to the automated nature of the search process itself. To this day, a "search engine" is actually a database of website copies. The search engine sends out "spiders," which are computer programs that go out onto the web and find new web pages. The spiders locate the pages and then copy some or all of the code into the search engine's own database. When a user searches a search engine, they're not actually searching the web itself, but are instead querying the database of copied webpages the search engine has compiled. The accuracy and comprehensiveness of this database varied from search engine to search engine and the results therefore varied depending on the weight each search engine gave to various factors in the database. Search engine A might list a certain webpage as the number-one result for windsurfing because the word "windsurfing" was prominent in the title of the webpage. But search engine B might list a completely different page as the first result because the word "windsurfing" showed up the greatest number of times in the body of the page.

Though they worked hard to make them otherwise, the algorithms the early search engines used to sort and rank pages were crude and wildly ineffective. The obvious alternative to this state of affairs was to bring a curatorial element to search. And in fact, the dominant player that would emerge in search was not strictly a search engine at all, but a directory, compiled not by bots but by actual humans.

In early 1994, Jerry Yang and David Filo were Ph.D. students in electrical engineering at Stanford. They knew each other from their studies but really bonded when they signed up for a brief teaching stint in Japan. The dissertations that the two were (ostensibly) working on in the spring of 1994 involved design automation software, which was a hot area of research at the time. Yang and Filo shared side-by-side cubicles in a Stanford portable trailer, in lieu of official offices. Their dissertation advisor was on sabbatical, so they were free to order pizza, goof around, and, oh yeah, occasionally research. More often than not, one or both of them would end up sleeping in the trailer. A friend called the trailer "a cockroach's picture of Christmas."[4]

The two students weren't exactly burning through their dissertation. Filo had discovered the Mosaic browser shortly after it was released, and this led to an all-consuming obsession with the World Wide Web. In those days, it was still possible to visit every single website in existence in a matter of a few hours. But new websites were popping up every day. Always a bit competitive, the two began collecting and trading links to the new websites they found. They started compiling these favorite links into a list, each trying to outdo the other by finding the coolest new site of the day.

This was right at the moment when Mosaic was lighting the fuse under the powder keg that was the web. As the web grew that summer, things got a bit more complicated. Because Yang's workstation was hooked up to Stanford's public Internet connection, other people could view the list the two were generating by going to http://akebono.stanford.edu. The list was called "Jerry's Guide to the World Wide Web," and it proved popular among Yang and Filo's group of friends. Word of mouth spread news of the list even further, and soon complete strangers were emailing suggested websites for inclusion. In order to keep things reasonably organized, Yang and Filo broke the list out into a hierarchical directory. Thus, to find MTV's home page, a user drilled down by category: Entertainment > Music > Music Videos > MTV.com. The pair came up with their own software to seek out ever-newer sites and webpages, but the additions to the directory were made entirely at Yang and Filo's discretion. In those days, there was no automation or algorithm.

The pair began working on the directory to the exclusion of almost everything else. They would toil away for dozens of hours at a stretch, trading off sleeping on the floor. For Yang and Filo, it wasn't work; it was fun. "We wanted to avoid doing our dissertations," Yang admitted.[5] By September 1994, Yang and Filo had compiled a directory of more than 2,000 sites. What was more impressive was the fact that Jerry's Guide to the World Wide Web was getting 50,000 hits (searches) a day. "We were in a unique situation in the summer of 1994," Yang remembered later, "to be able to experience that kind of grass-roots growth, fueled by a lot of interest that was not our doing, and then just sitting back to watch the access logs go up."[6] The pair decided that their project needed a better name. A convention among software developers at the time was to name projects "Yet Another Something Something." For example, YAML was Yet Another Markup Language. So, Yang and Filo settled on the name Yahoo!, which they claimed stood for Yet Another Hierarchical, Officious Oracle. The exclamation point was irreverent and entirely intentional—as Filo put it, “Pure marketing hype.”[7] The URL became http://akebono.stanford.edu/yahoo.

Stanford has a long history of supporting student-run projects that may or may not evolve into startups. So, at least initially, the university was a generous host of Yahoo’s traffic and content, free of charge. When Netscape launched its beta browser late in 1994, it decided to make Yahoo the default link when a user clicked the DIRECTORY button on the top menu of the browser. No one could have anticipated it beforehand, but having a button in Navigator’s menu bar was almost as valuable as having an icon on the Windows desktop. The flow of curious web searchers grew into a flood. Yahoo had its first million-hit day late in 1994. By January 1995, Yahoo had grown into a directory of 10,000 sites and was getting more than 100,000 unique visitors a day. The servers began to struggle under the deluge, so the university asked Yang and Filo to find another host for their website.

For Yang and Filo, it was the moment of truth. For months they had left their dissertations languishing. Now it was time to decide if Yahoo was a real thing or not, and whether or not the “boys” were willing to become businessmen. “David had it in his gut very early on that Yahoo could ultimately be a consumer interface to the Web rather than simply a search engine or a piece of technology,” Yang told *Fortune*. “We weren’t really sure you could make a business out of it though.”[8] Interested parties were already forming a line at Yahoo’s trailer door. Reuters, MCI, Microsoft, CNET and a pre-IPO Netscape all met with the creators to see if some form of partnership or buyout was possible. “I remember sitting in their trailer in December of ’94,” remembers Tim Brady, who was a friend of Jerry and David and would be one of their first hires. “And they had a voicemail system, and the head of the *Los Angeles Times* was calling, AOL was calling, and those were just the ones that were on the voicemail that day.”[9]

The venture capitalists soon came calling as well, and now that they needed a permanent home, the boys were ready to talk. But the moneymen were skeptical about Yahoo’s chances of being a sustainable business. Netscape might have seemed like a dubious proposition when it was looking to raise funds: barely making money, kinda-sorta giving away its product for free, unproven market, *etc.* But at least Navigator was a software package. People understood that software could be sold. Netscape was proving it could make real money providing support and server packages to supplement its software. Yahoo, on the other hand, was a service; a destination; a directory; a glorified list. There was almost nothing proprietary about it. Furthermore, it was a service that you could never charge for. Yang and Filo were convinced—quite rightly—that the day they started charging users to search would be the last day users ever visited Yahoo again. If Netscape's business seemed intangible, Yahoo's seemed downright hypothetical. Yang began circulating a scratched-together business plan, but this failed to impress the VC's who were sniffing around.

One of those who made the trek to the messy trailer before Yang and Filo vacated Stanford was a VC named Mike Moritz. Moritz described the squalor as "every mother's idea of the bedroom that she wished her sons never had."[10] He and his team quizzed Yang and Filo among the empty pizza boxes and humming workstations, asking the obvious question: "So, how much are you going to charge subscribers?"[11]

"Dave and I looked at each other and said, 'Well, it's going to be a long conversation,' " Yang would recall. "But two hours later, we convinced them that Yahoo should be free."[12]

Moritz was a general partner at the VC firm Sequoia Capital. Sequoia had funded such Silicon Valley luminaries as Apple, Atari, Cisco and Oracle, but it had not yet dipped its toe into Internet waters. The vision that Moritz used to argue Yahoo's case was the one put to him by Yang and Filo. It sounded like a mix of the Netscape strategy with a bit of AOL sprinkled in. Yahoo already had millions of loyal users; surely there would be some way to monetize them. As more and more users were coming to the web, Yahoo could be the friendly guide that would hold the hands of new users and lead them out into the void. If there was an elevator pitch, it was that Yahoo had the chance to be the *TV Guide* for the Internet. Like Yahoo, *TV Guide* simply provided information that any other entity could aggregate. And yet, *TV Guide* was (at that time) the largest-circulation magazine on the planet.

Sequoia eventually bought the pitch. Yahoo already had an audience of millions, and if the web kept growing at its present rate, who knew how many hundreds of millions could be reached in the near future? By that logic, even the wacky company name could be seen as a plus. After all, as Don Valentine, the legendary founder of Sequoia, put it, "A long time ago, we helped finance a company called Apple."[13] Sometimes investments in companies with silly names could turn out handsomely.

In April 1995, Sequoia invested $1 million in exchange for one-fourth of the newly incorporated Yahoo. By early 1999, Sequoia's initial $1 million was worth $8 *billion*.[14]

With their first infusion of cash, Yang and Filo secured 1,500 square feet of office space at the auspicious address of 110 Pioneer Way.[15] Engineers were brought onboard to help Filo set up Yahoo's servers and technologies in-house. The Yahoo.com domain was registered. Finance folk were brought on to structure Yahoo like a lean, mean startup. An "adult" was brought in to be CEO, in the person of Tim Koogle, a veteran of both tech startups and the tech establishment, in the form of Motorola. As for the two founders, Yang took the official title of "Chief Yahoo" and continued to be the face of the company. Filo took the title "Cheap Yahoo" and dedicated himself to keeping the tech side running smoothly and frugally. Most important, a cadre of new hires was fashioned into a team of professional web surfers who would help build out the Yahoo directory and stay on top of the exploding web. The surfers, who would eventually number more than fifty, were each expected to add as many as a thousand new sites a day to the directory.[16]

The web was growing exponentially, and Yahoo needed to keep up with it. But it also had to keep looking back over its shoulder. If a deep-pocketed competitor copied Yahoo's glorified list, what could prevent Yahoo from being steamrolled? "It wasn't rocket science," Filo admitted. "We didn't have patents or anything like that. Someone smart with resources could have done the same thing."[17]

For his part, Jerry Yang was confident that Yahoo had one unique advantage: it had been first. It would become an article of faith during the dot-com era that being early to market on the Internet frontier conferred a magical "first-mover advantage" on whomever was so fortunate. Certainly, Yahoo's experience did nothing to disprove this. Those early months as the default search tool on Navigator had sown the seeds of familiarity and loyalty among early Internet adopters. Even when competing services showed up, users had a tendency to stick with what they knew, so long as it continued to work. The first-mover advantage meant that Yahoo had a big head start in the land grab for market and mind share among early web devotees. This was a lead that was Yahoo's to lose. In order to stay ahead, Yahoo decided to take a page out of AOL's book. It would brand itself in order to reinforce its users' loyalty.

With millions of users already familiar with Yahoo and tens of millions of "newbies" on their way, becoming the first Internet brand would be invaluable. Karen Edwards was brought on to direct Yahoo's marketing efforts. With previous experience at Clorox and 20th Century Fox, Edwards bought an offlineindustry faith in the power of branding to the new world of clicks and browsing. From her very first interview with the company, Edwards pushed the idea that building a strong brand might create a defensible moat around Yahoo's unpatentable and eminently copyable service. "I think we could really make Yahoo a household name," Edwards told her new coworkers. "I remember Jerry Yang laughing, 'Ha, ha! A household name?' "[18] But under Edwards's direction, Yahoo did something that was completely radical for the time: advertise on TV and radio. Yahoo was the first Internet company to market itself via mass media. With zippy, hip ads, matching the slick name and the brash image of the site overall, Americans found themselves being asked "Do You Yahoo?" Yahoo quickly became one of the Internet's most recognizable names, familiar even to the vast uninitiated Americans who were not yet even online. With its quirky purple logo, Yahoo was soon everywhere, from hockey rinks to billboards to t-shirts. *Businessweek* said that Yahoo projected a "cool California image—hip but not rad, easy-to-use but not simplistic."[19] In the twelve months after starting the "Do You?" campaign, traffic to Yahoo's website quadrupled.[20] By 1998, Yahoo was better known to the average consumer than even Microsoft.

"The fundamental bet we are making is that we are a media company, not a tools company," Yang told *Fortune* magazine. "If we are a tools company, we are not going to survive. Microsoft will just take over our space. If we are a publication, like a *Fortune* or a *Time*, and we create brand loyalty, then we have a sustainable business."[21] Making Yahoo the first great brand of the Internet Era would serve the company well throughout the entire dot-com period. When later asked why Yahoo enjoyed a greater stock market valuation than rival search companies such as Excite, a stock analyst would reply, "Yahoo is cool! It's not a technology company. It's a brand, it's an article of culture."[22]

Then came the Netscape IPO in September 1995. The Internet was hot and Wall Street was in search of other net companies that seemed to have the same growth trajectory. Search engines had the largest audience of netheads anywhere, and Yahoo was leading the pack. By February of the following year, the site was seeing more than 6 million visitors every single day.[23] Those traffic numbers were double what Yahoo had seen just five months before. The growth was parabolic.

Now that Wall Street was living in a post-Netscape world, the pressure built for Yahoo to go public as well. They didn't need to; additional rounds of investment left Yahoo with quite a war chest. But Yahoo's competitors, the search "engines" Excite, Lycos and Infoseek, were all filing to go public in Netscape's slipstream. Yahoo couldn't turn down the opportunity to raise even more money and maintain its lead against its search rivals. Plus, Netscape had shown that there was an incredible amount of free publicity to be gained by a successful, high-profile IPO. By sitting out the party, Yahoo risked ceding its role as the industry leader, at least in the eyes of Wall Street.

Excite and Lycos enjoyed moderately successful IPOs in early April 1996 (Infoseek went public a few months later). Yahoo went public on April 12, selling 2.6 million shares, initially priced at $13, but seeing a first trade price of $24.50.[24] Over the course of the first day, the stock peaked at $43 before ending the day at $33.[25] This 154% leap over the offer price was better than even Netscape's 105% first-day pop.[26] More important, this made Yahoo's market value $850 million, which was more than Excite's $206 million and Lycos's $241 million combined.[27] As planned, Yahoo's IPO made all the other search sites look like pretenders to the throne.

Yahoo now had hundreds of millions of dollars in the bank. Yang and Filo had each pocketed about $130 million on paper. But Yang said that the IPO had merely induced "panic—no, not panic, but anxiety."[28] That was because there was one looming problem: for all the dollar signs in Yahoo's bank account, there wasn't actually much on Yahoo's bottom line. In its first quarter as a public company, Netscape had recorded revenue of $56.1 million.[29] By comparison, in *its* first quarter as a public company, Yahoo could report revenue of only $3.2 million.[30] Even that was better than 1995, when Yahoo reported revenue of only $1.4 million *for the entire year*.[31] Again, if Netscape had gone public with questionable revenues, Yahoo had taken things to the next (more speculative?) level. But investors had shown that they were willing to invest in unprofitable young web companies as long as they could show growth. Yahoo would be okay as long as it could show continued audience growth *and* as long as it could find a way to monetize that audience. One day. Preferably soon.

In the meantime, of course, *HotWired* had shown the way to easy money: web content could be subsidized by ads. Unlike *HotWired* or Pathfinder or *Slate*, in Yahoo's case, it didn't even have to produce the "content" on its site itself. The content was the web! Yang and Filo didn't want ads to interrupt their directory, but ads *around* the directory, sort of like the ads around the *HotWired* articles, might be okay. At the time, Yahoo liked to give the impression that it came to the advertising model reluctantly, but really, there was no other feasible option available to the company. As early as April 1995, soon after the original Sequoia investment, David Filo granted an interview to *Advertising Age* magazine. Under the headline “A Gaggle of Web Guides Vies for Ads; Yahoo Directory Opens to Sponsorship Deals as Competition Grows,” Filo declared, “Because we are now backed by a third party, there’s pressure to produce. Yahoo will have to become a money-making enterprise. We’re not sure if we want to start reviewing sites or continue to just list sites in a comprehensive fashion, but we are definitely going to integrate advertising into what we do.”[32]

Yahoo treaded lightly, putting a survey on its home page asking users whether they would countenance ads. The response was lukewarm acceptance. Nevertheless, there were those inside the company who feared that even introducing graphics might fundamentally alter the freewheeling ethos that made Yahoo unique. When the first ads were launched later that month, according to Tim Brady, “The email box was immediately flooded with people badmouthing us and telling us to take it off. ‘What are you doing? You’re ruining the net!’ ”[33] The Yahoos held their breath to see if the ads chased searchers away. But the protests quieted down after only a few weeks. The directory was just as helpful as it always was. The users stayed loyal.

Once Yahoo turned on the advertising spigot, it ramped things up rapidly, signing on more than 80 sponsors in less than six months.[34] The advertisers and the advertisements would only increase with Yahoo’s growing traffic numbers. By 1996’s fourth quarter, the website could boast 550 advertisers, including many Fortune 500 companies such as Wal-Mart and Coca-Cola. This all led to an impressive 1,300% increase in its revenues, to $19.7 million in 1996. But because the web was growing every day, the company found it literally could not sell ads fast enough. By the end of 1996, as pageviews reached 14 million a day, as much as 75% of Yahoo’s potential ad space went unsold.[35] There was simply too much traffic to sell.

Because Yahoo had so successfully branded itself as the Internet’s version of the Yellow Pages, countless brands and retailers jockeyed to purchase valuable real estate on Yahoo’s directory. New dot-com companies would compete viciously among themselves for prominent placement. Amazon.com and CDNow.com could be played off one another to advertise music sales alongside Yahoo’s Music categories. E*Trade and Datek online would sign multimillion-dollar deals just to put online trading buttons in Yahoo’s Finance sections. And it wasn’t just retailers: when Yahoo decided to add news, weather, stock prices and other curios to its directory, it found that media partners such as Reuters were eager to partner and provide content in exchange for a share of the advertising revenues.

“There was a land grab,” a Yahoo marketing executive would remember. Yahoo was perfectly positioned to take advantage as Internet mania took off. “It was no one’s fault, but lots of companies were overinvesting and trying to grow too fast. It’s hard to blame Yahoo for that—but sure, we were right there taking the money.”[36] By 1997, the online advertising market neared $1 billion, and Yahoo alone was estimated to control 7.5% of the total.[37] Yahoo’s advertising base shot to 1,700 brand clients. These advertisers were chasing traffic that had skyrocketed to an astounding 65 million pageviews per day. And all of this led to a proportionate 257% rise in revenues to $70.4 million.[38] Yahoo’s stock rose accordingly, jumping 511% over the course of 1997. The company at that point had a market value of almost $4 billion.

Yahoo was bigger than Netscape. But unlike Netscape, which remained a traditional software and business services company, Yahoo was a web-only company, a web-native company, a company that would never have existed if the web had never been invented.

[*] Pinning down which one was first is open to debate. For the sake of brevity and clarity we can focus on those that were the longest-lasting and actually led to websites that would become familiar to everyday web surfers.