

How the Metaphor of “the Cloud” Changed Our Attitude Toward the Internet

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It is tempting, sometimes, to point at all the new words we acquire, year after year, as a measure of how fast the world is changing. There is a **fleeting shock** to be had in the recollection that humans of the very near past made do without reference to “sexts” or “paywalls.” But what can we learn from the old words that get remade before our very eyes, the new possibilities that gather around “leak” or “virus,” or the new wariness that accompanies once-innocuous words like “disruption” and “content”?

Around 2010, casual Internet users were introduced to the idea that the digital world around them could be understood in terms of the “cloud.” As a metaphor, the cloud seems easy to grasp: our data is somewhere in the ether, floating, drifting and wireless, available wherever and whenever we need it. It carries **hints of childhood wonder**; the term is evocative because it is the opposite of the hard, material world of plugs and cables, disk drives and superhighways. But the thing about a cloud, Tung-Hui Hu reminds us in his mesmerizing new book, “A Prehistory of the Cloud,” is that you can only see it from a distance. How did we **come to place** our faith in a symbol that is so ephemeral – all vapor and crystal? “Like the inaudible **hum** of the electrical grid at 60 hertz, the cloud is silent, in the background, and almost unnoticeable.” What might we learn if we try to trace its mellow outline against the sky?

“A Prehistory of the Cloud” is Hu’s imaginative attempt to bring this abstraction into clearer focus. It’s informed as much by his current jobs (English professor and poet) as his old one (network engineer), and his approach is eclectic and unpredictable, full of unexpected riffs on Victorian sewage systems, the history of television, counterculture **seekers**, and the chilling final scene of Francis Ford Coppola’s paranoid classic “The Conversation.”

Hu begins by following the sporadic appearance of the cloud through the dreams of last century’s inventors and engineers. One of the earliest occurrences of its modern shape is found in a 1922 design for a series of linked telegraphs that allowed mathematicians to communicate with one another and thereby predict the weather. In 1951, A.T. & T. introduced a series of **microwave relay stations** and called it the “electronic ‘skyway’ ” – this, too, suggested a fuzzy, cloud-like formation. By the nineteen-seventies, the figure of the cloud had emerged as a way to depict complex communication networks, especially ones, like the telephone or Internet, where information traveled along unpredictable circuits. (Prior to this, networks had been depicted in terms of boxes, grids, straight lines, and direct arrows, rather than the **squiggles** and curls of these new renderings.)

What these examples had in common was a desire to collect something **scattered** and **far-flung** into a legible whole. As Hu explains, the idea of wholeness was important, since it contained the possibility that an entire network could continue functioning even if one node along the way went offline, a resilience that held special appeal for the military. The cloud had no beginning or end. It was adaptable and ubiquitous, a vision of a society with no center.

For military **schemers**, the centerless cloud promised security: it was a communications network with no clear **bull’s-eye**. But what makes Hu’s book so absorbing is its playful speculations about alternative possibilities, all the strange resonances lurking in the archives. While American intelligence fine-tuned its **blueprints** for a networked world, others were also **drifting toward** the dream of a decentralized future – only their version was about **blazing a trail** that would be free of

The Man's dragnet. Any thorough history of technology contains moments that feel like science fiction or an acid trip; these are some of the most **gripping** moments of Hu's book, as when he **lingers on the bewitching**, "Crying of Lot 49" – like possibility that Stanford Research Institute engineers and avant-garde "video freaks" could have encountered one another at a Peninsula bar, or side by side at a stop light, as both crews sat in their mobile transmitting vans. Maybe they would have realized they were working toward the same future.

But who would control that future? Despite his book's melancholy vibe, Hu's story isn't a particularly paranoid one. For him, the scattered origins of the cloud and cloud-thinking are important, in part, for the way that they **dispel** present-day techno-utopianism. Just as old words get **refurbished** with new meanings, much of our nation's Internet infrastructure was simply **laid atop** paths cleared for the railroads and telephones – a previous generation's technological wonders. The name of the telecommunications giant Sprint, for example, was originally an acronym for Southern Pacific Railroad Internal Networking Telephony. Or consider Iron Mountain, once a nuclear **blast-proof** vault for corporate clients and now one of America's biggest data backup and digital storage companies. (That site – or, rather, a lightly fictionalized version of it, called Steel Mountain – featured prominently on "Mr. Robot," the popular TV series about a group of hackers.) Understanding that history matters, if only to recognize where our attitudes and expectations toward technology came from, and how we came to accept the silent bargain each of us makes when we **tap into** the power of distant servers or **escrow** our digital lives somewhere in the sky. Hu argues, convincingly, that the military's interest in online **impregnability** **trickled down** to the rest of us and became one of the central anxieties in our increasingly interlinked digital lives: the language of data security and disaster prevention, the overhyped concerns about borders and contamination that Hu eloquently reads in the **leering** hysteria over Nigerian spammers.

"To think about the digital network," Hu writes, "one must first think about the network in the absence of individual technologies." Innovations and platforms come and go, but the impressions they leave on our sense of the world remain. What kind of thinking does the cloud, so porous and diffuse, enable? Does our participation in the cloud require us to surrender a bit of our privacy? Can it help explain the rise of the meme and our increasingly **lax attitude** toward notions of authorship and origins, the way something on the Internet begins to seem ubiquitous and ambient, as if it had always just been there? When the comedian known as the Fat Jew was accused of stealing jokes from other Instagram users, for instance, he defended himself by pointing to the Internet's borderless nature, where it is "sometimes hard to find the original source of something."

The deep strangeness of the cloud only occurs to most of us in those brief moments when we forget our Dropbox passwords or hear about a celebrity's **wayward** nudes. Hu began wondering about it, he explains, in his former life, as a network engineer working in Silicon Valley in the late nineteen-nineties. Every day, he would clock in at one of the many unassuming, faintly Spanish-looking buildings in downtown Palo Alto. "**Unbeknownst** to its well-heeled passers-by," he writes, nearly a fifth of the world's Internet traffic **zipped** through this facility, where Hu often had no clue what his co-workers a few feet over were doing. In a short section titled "Learning From Santa Clara," he returns to the Bay Area's **brick-and-mortar** data centers, where the **guts** of the Internet are hidden in plain sight. It's just a series of photographs featuring office windows, lamp posts, building vents, generators – a landscape of the forgettable and mundane that betrays none of its secrets and, hopefully, none of ours.