Sir Tim Berners-Lee:
A Biography

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TIM BERNERS-LEE

Early & Personal Life

Sir Tim Berners-Lee is a software engineer and computer scientist from London, born June 8th 1955. His parents, Conway Berners-Lee and Mary both worked on the world's first commercially made computer; the Ferranti Mark 1 [1] – which is speculated to have fostered a love of computers and electronics from an early age.

He studied Physics at Queen's College, Oxford and received a first-class honors in 1976. There he built his first computer with a soldering iron, TTL Gates, an M6800 processor and an old television. On his decision to study physics he said "I took physics thinking it would be a sort of compromise between maths and electronics, theory and practice. It turned out not to be that, but to be something special and wonderful in itself." [2]

After Queen's Berners-Lee worked for a few private entities in the realm of Telecommunications & concurrency within OS. As an independent consultant at CERN from Jun-Dec 1980, he wrote a private data storage program using random association called "ENQUIRE". While it was never published it molded the theoretical beginning of the World Wide Web as it was based on the concept of hypertext.

In 1984 he began a fellowship at CERN, tasked with working on distributed systems. In 1989 the internet had already been well established and CERN was the largest node in Europe. Based off his previous experience with both real-time remote procedure call and his work on ENQUIRE Berners-Lee simply facilitated the joining of hypertext, TCP & domain name systems. When speaking of his time at CERN Berners-Lee said

"Creating the web was really an act of desperation, because the situation without it was very difficult when I was working at CERN later. Most of the technology involved in the web, like the hypertext, like the internet, multifont text objects, had all been designed already. I just had to put them together. It was a step of generalising, going to a higher level of abstraction"[3]

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[1] [Interview with David Brake, "New Scientist", 1997]
[2] Ibis.
[3] [Cyberspace: Risks and Benefits for Society, Security and Development 2017]

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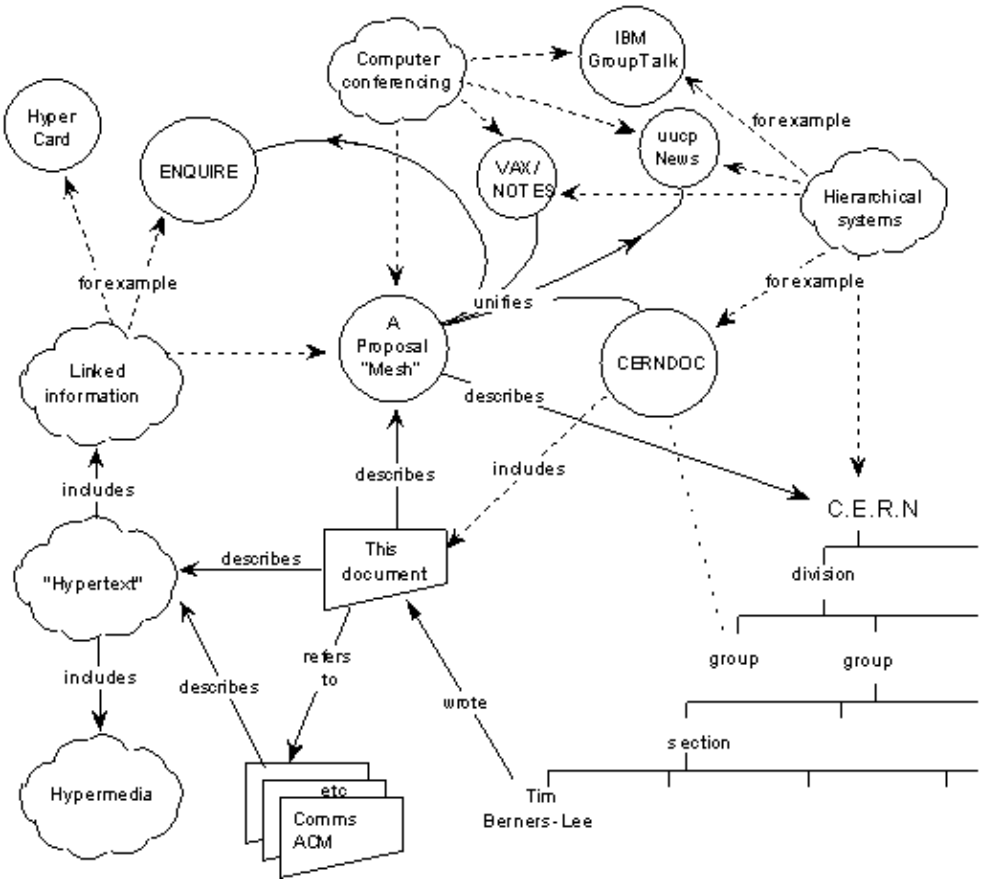
Conceptual Combination

The work of Berners-Lee doesn't have any of the hallmarks of typical creative genius. There was no apparition or culmination of pure concept to functional model. The work he did was based mostly off what had come before and a combination of previous works to a greater level of abstraction. Yet what his work on the World Wide Web lacks in raw production, it makes over tenfold in ingenuity of compilation – it was the way in which he brought together current technologies and amalgamated them into an easier to use, better system. This ability to build from the work of others and cleverly distribute existing information is, I believe, the foundations of modern software engineering. In a climate where processors have been refined to a honed edge, compilers optimize your code and "there's a library for that" coding. True genius manifests in the creativity of people like Berners-Lee.

Work on the World Wide Web



(Diagram from Information Management: A Proposal May 1990)

Berners-Lee's work on the World Wide Web began with his proposal to Mike Sendall entitled Information Management: A Proposal. The paper detailed a means of using hypertext to solve a problem of information access at CERN. Berners-Lee modelled the web off the hierarchal structure of CERN itself, noting that groups within CERN would openly share information, equipment and software. He modelled CERN using the hypertext technology developed for Enquire that allowed one to progress via links from one sheet to another, and ran this on a multiuser system. *"Imagine, then, the references in this document, all being associated with the network address of the thing to which they referred, so that while reading this document you could skip to them with a click of the mouse."* [4]

It was the installation of TCP/IP protocols on some non-Unix machines at CERN that facilitated Berners-Lee's model of information management. By December 1990 he had built all of the necessary components for the Web to work. Though his web browser named WorldWideWeb only ran on the NeXT machines that Berners-Lee used. Nicola Pellow developed a browser the could work on almost any Computer.

The First Website.

Info.cern.ch was the first ever web site/server. It ran on a computer in CERN and went online on the 6th of August 1991. The first web page address was http://info.cern.ch/hypertext/WWW/TheProject.html which detailed the WWW project that Berners-Lee was working on with Robert Cailliau. It also gave visitors technical instructions for

[4] Information Management: A Proposal 1980

making their own webpage, which began the user oriented propagation of the WWW. Once up the WWW began spreading across mainly the academic world

Growth.

By January 1993 there were fifty Web servers across the world, this number grew tenfold by October of the same year. The web began to find applications outside of academic research sharing. Webcomics began in 1993. This major spike in popularity can be attributed to the development of more web browsers that made the Web more accessible than before. Cello and Mosaic are examples of these. Cello leading to the popularity of the Web among lawyers who used a Windows OS. Mosaic then released Windows & Mac versions that supported integrated multimedia, which greatly increased its popularity.

Influence.

The World Wide Web has had an unprecedented influence on today's world. Internet integration comes as standard on every mobile device. The availability of easily spread information became a massive assets to private interests. The Web was heavily commercialized and a "dot-com" boom occurred, in which dozens of venture capital funded tech start-ups were established but burned through their money before becoming profitable. Some companies however survived and are now the major Web giants that we see today e.g. Google.

The influence of Berners-Lee's work cannot be understated, it has fundamentally changed the world. In his achievements we see the widespread application of developed software based on the abstraction of previously available technology.