

Crippled by its own Strengths: The Software Infrastructure of the Commercializing Internet

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Topic: The mid-1990s saw the commercialization of the Internet and the two most important kinds of internet application software: web browsers/servers and email. These tools provide the key elements of most internet user's daily on-line experiences, are crucial parts of the net's software infrastructure. Their appeal largely explains the Internet's abrupt shift from an obscure academic and military research network to the world's universal mechanism for electronic communication. The fundamental design principles embedded in early web browsers and email systems reflected the academic milieu of the early Internet. Internet email evolved slowly within the sheltered academic world, while the first web browsers performed the technologically trivial task of implementing a simple hypertext language and common interface to existing Internet resources.

Argument: The strengths of the web and of Internet email reflected the concerns and cultures of their research-oriented early users and designers: simplicity, ease of implementation, open protocols, lack of central regulation and the ad-hoc pragmatism of their design that favored a working system this week over a great system in a few years time. The same virtues explain the Internet's rapid spread beyond academia into homes, offices and schools. But in the harsher world of the commercial Internet, web links tended to break and content was hard to find, fraudulent spam proliferated, users had no secure or convenient way to pay for online content or services, and email users had no way to know if their own messages had been received. Technologies such as search engines, spam blockers, and credit card encryption and validation tools could only alleviate these ills, not cure them. These problems were not unavoidable features of all online systems, and indeed had already been solved elsewhere. Commercial email systems and the X.400 international standards agreed for email provided much features like guaranteed delivery, identity verification, receipt confirmation, encryption, shared email directories and so on. Likewise, and in contrast to the early commercialized web, the complex hypertext research systems tackled problems such as searching and the updating of links when content moved or vanished. The shift of technology from one social space to another rendered the Internet a technological system crippled by the same strengths that initially ensured its ubiquity.

Evidence: Primary sources exist in abundance, in particular archived Usenet news groups and technical publications concerning the architecture, reception and design principles of Internet software. Newspapers, magazines, academic journals and other published sources provide a great deal of information.

Contribution to Existing Literature: My paper draws upon rich veins of work in the history of technology concerning the evolution of technological systems, the mutual shaping of technology and society and the role of users in technological change. Beyond its significance as one of the first explorations of the commercialized internet by an academic historian, my paper highlights the more general phenomenon by which a technological system initially shaped by one environment and set of values is socially and culturally re-constructed as it moves into a different social space.