Assignment 1

Short Essay

Question:

The Internet is a product of the U.S. military. Discuss.

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The Internet wasn't a product of the U.S. military

The Internet has become one of the most successful inventions of our time. Thanks largely to the intrinsic features of predecessor technologies, such as flexibility and survivability, the Internet has been reshaped and reformulated over the past several decades. Therefore, defining such an amoebic technology hasn't been easy and the inventors are somewhat numerous to identify.

To invent an object is "to originate or create as a product of one's own ingenuity, experimentation, or contrivance: to invent the telegraph." (Dictionary.com, 2008) Taking the US military as our producer, we will find that they were not responsible for the production of the Internet as we know it.

First I will describe the Internet. Then I will point out why the US Department of Defense's Advanced Research Projects Agency (ARPA) didn't produce it. Finally, I'll list some of the main contributors from the early days of the Internet's development and mention some ways in which the Internet is continuing to be produced.

Human communication via computers on alien networks was Ian Peter's criteria for differentiating the Internet from a regular (internal) computer network. (Peter, 2004) This criteria surpasses the first computer networks, or intranets, in several ways. The term Internet comes from two words, inter, denoting among or between, and network(s). This meaning can be interpreted as the connectivity among all linked networks. Previously one significant network was that of ARPA. Early computer networks, such as ARPANET, did involve humans communicating with each other. Interpersonal messaging in some old form then, has quickly become the most popular network application since, what we now know as email. The World Wide Web (WWW), another "killer application", is often confused with the term Internet. It is clear when we consider the WWW amongst other applications, such as asynchronous email, newsgroups, instant messaging and conferencing applications, that these all utilize the Internet and are merely constituents. In a nutshell, the Internet is infrastructure facilitating various forms of human communication via connected computer networks around the world.

"ARPA funded the development of a different technology called packet switching, which creates a host/host relationship among networked computers… …creating a more decentralized method of handling data, and allowing a variety of originators to use the same communications line." (Stevenson, 1995) The network that ARPA supported development of, fulfilled two purposes. First it allowed "scientists to overcome the difficulties of running programs on remote computers" (Abbate, 1999) and second, to facilitate time-sharing. This time-sharing can take the form of either running a program on a more powerful remote computer, or a procedure where huge calculations can be solved with the combined power of several networked computers. The ARPANET achieved these aims, and more, such as messaging between users. (Peter, 2004) For ease of management purposes, the flexibility deliberately built into the system "allowed any user with the requisite skill and interest to propose a new feature" (Abbate, 1999). Despite all this ingenuity, ARPANET remained a single closed network. (Stevenson, 1995) This defies the first term inter in Internet. Although some significant foundations were laid in ARPANET, "what the ARPANET didn't address was the issue of interconnecting multiple networks…" (Peter, 2004)

Abbate describes the ongoing reconfiguration of what we know as the Internet, where "users are not necessarily just 'consumers' of a technology but can take an active part in defining its features." While in the USA the Open Internet Coalition has a mandate to continue fair and equal access to the Internet, should they fail, it would have serious impacts on who shapes our Internet today and tomorrow. (*Why an open Internet?* n.d.) Regardless of their outcomes, it certainly won't be the US military producing the next generation Internet. It was during the 1980s when ARPA willingly handed over responsibility of the Internet to the National Science Foundation, who in turn handed it on to private businesses in the 1990s. (Abbate, 1999)

"TCP/IP was developed to solve problems with earlier homogenous attempts at communication between computers undertaken by ARPANET." (Peter, 2004) Steve Crocker lead a team of the Networking Group to build this backbone protocol in the 1970s, making it possible for computers to communicate comprehensibly between disparate networks. It was TCP/IP that survived against other protocols for its straightforwardness to adopt and its cheap cost. Ian Peter goes on to add the large telecommunications company, AT&T, who provided several vital components of infrastructure to the Internet's development, phone lines for example. Unix paired with the UUCP copy protocol, was undoubtedly the operating system of the early Internet. This contribution came from AT&T's Bell Labs along with the fundamental Internet software programming language, C. In 1972 it was Ray Tomlinson who chose the @ symbol to form the Internet standard for email addressing. (Peter, 2004) The WWW is also an example of an informally created application popularized by

spontaneous decisions of independent users. (Abbate, 1999) The early contributing inventors are many. New features of the Internet are being defined and created though collaborative efforts of larger and conceivably more diverse interest groups than ever before.

Stimulating annual events like Mashed 08 are regularly bringing developers out of the woodwork. Over the weekend web coders and hackers together pitched their creative efforts toward producing new Internet applications. (Johnson, 2008) Here we find the brief yet popular collaboration between hacker communities, sponsor organizations such as the BBC, Microsoft, Yahoo, and the open source Kamaelia. In addition to collaborative application development, telcos continue to competitively pitch service to an ever increasing broadband consumer population. Even elderly persons retired from the workforce having never previously used computers are now joining user groups to communicate. This is especially so for those living in remote areas and far from any US military developments. From military organizations to scientists, from commercial operators to individuals, together we are "experts and users alike, who are even now engaged in reinventing the Internet." (Abbate, 1999)

The ubiquitous Internet continues to be reshaped and reformed by both users and institutions. As an entity, the Internet is much like a lot of modern technology. Seemingly in a constant cycle of beta through to new version development and around again, albeit with a new and more complex layer, like an onion growing an advanced skin. Since the Internet has been under continuous re-invention, it isn't possible to pinpoint an original time, nor list all the inventors. In fact, even from its earliest days, the development of the Internet has been a joint effort from a range of groups and individuals around the world. Perhaps more than any other known technology, the Internet evolves in a collaborative process, involving a diversity of active and passive players. Thus to some small or larger extent, we are all inventors, and the Internet's shelf-life extends perpetually.

References

Abbate, J (1999). *Inventing the Internet*. Cambridge, Mass, MIT Press

American Psychological Association (APA):
invent. (n.d.). Dictionary.com Unabridged (v 1.1). Retrieved 12 July, 2008, from Dictionary.com website: http://dictionary.reference.com/browse/invent

Johnson, B (2008). *When hackers converge*. *Guardian* retrieved from TheAge.com.au website: http://www.theage.com.au/articles/2008/07/09/1215282890830.html?page=fullpage#contentSwap1

Peter, I (2004). *The Internet History Project: Origins of the Internet*
Retrieved 22 June, 2008 from http://www.nethistory.info/History%20of%20the%20Internet/origins.html

Stevenson, J (1995). *(De) Constructing the Matrix: Toward a Social History of the Early Internet*
Retrieved 20 June, 2008 from http://www.tranquileye.com/netessays/de_constructing_the_matrix.html

Why an open Internet? (n.d.). Retrieved 23 June, 2008 from
http://www.openinternetcoalition.org/index.cfm?objectid=0016BFA0-F1F6-6035-BC6DFC8A0E03C0D7