Beyond the Americentric Narrative:
Examining International Contributions to the Development of the Internet

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Abstract

The internet is often portrayed as an invention of the United States of America, having grown solely from ARPANET, with little recognition given to the contributions made by other countries and regions. This paper challenges the Americentric narrative of the internet's evolution, highlighting the other early network developments made by international (non-U.S.) actors. Through critical analysis of primary and secondary sources, such as media representations and historical documentation, a detailed history of computer networks and gaps in the current historical accounts can be reconstructed. This paper explores the array of other networks developed in parallel to ARPANET, the unique innovations each of these networks made, and assess the fact that it was very likely that these networks would have been integrated with one another even if ARPANET never existed. While the United States certainly played a significant role in the internet's creation, the dominant US-centric narrative not only erases the valuable contributions of other countries and regions but has potentially dire consequences for continued international collaboration and innovation because it furthers American exceptionalism, thus impacting foreign policy and relations. The history of the internet has been accurately chronicled many times - defined by containing correct information - but they have often left many of the critical international actors out of the record. The many histories that represent the internet as having evolved exclusively from ARPANET are deeply flawed, as the internet is a result of close collaboration globally. However, this very collaboration has been a cause of much of the incomplete narrative, creating obstacles for further collaboration. By challenging the existing dominant narrative, this paper provides a more complete and inclusive historical account of the development of the internet.

Introduction

- Tensions between the US and foreign powers surrounding stewardship and governance of the Internet and digital space have only grown
- ICANN no longer has any contract with the United States Department of Commerce; in 2016 it did not renew its contract in light of international conflicts
- The lineage of the internet and of network developments has long been debated, however, it is a grossly inaccurate to say the US created the internet alone
- Many of the so-called "histories of the internet" represent the internet as though it was a linear development from ARPANET to the internet
- Some of the early developers of the internet have either hidden or published misleading claims that have obscured others' contributions
- The incomplete historical narrative has created a cultural momentum which has influenced current media
- A more complete historical account and an awareness of the value of global collaboration, both historically and currently, is critical

Historical Analysis

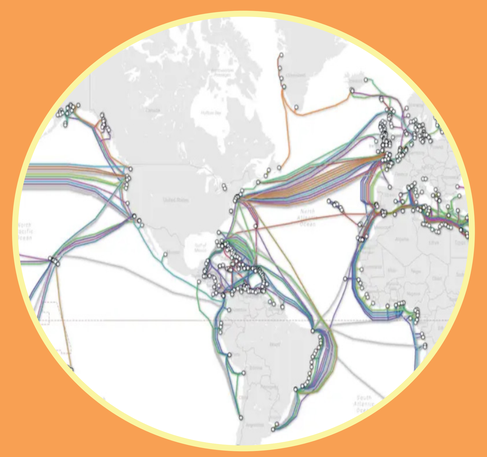
- 1930's - H.G. Wells' concept of "World Brain" where future students could access books and documents from their own rooms
- 1931 - Vannever Bush's concept "memex" informational archival and retrieval machine
- 1940s - Alan Turing in U.K. created the "Bombe" computer to crack the Enigma code
- 1952 - MANIAC 1 computer used at Los Alamos
- 1954 - LEO (Lyons Electric Office) created by Lyons Electric Company in U.K.
- 1958 - IBM's SABRE (Semi-Automatic Business Research Environment) and SAGE (Semi-Automatic Ground Environment) created the first computer network for real-time computing
- 1965 - California and Massachusetts computers get connected with WAN (Wide Area Network)
- 1969 - ARPANET (Advanced Research Projects Agency Network) created first wide-area packet-switched network
- 1972 - NORSAR (Norwegian Seismic Array) in U.K. and ARPANET connected
- 1972 - ALOHAnet was first network via satellite
- 1970s - first use of Television signals to carry information by BBC (British Broadcasting Company) and IBA (Independent Broadcasting Company)
- 1970s - France and U.K. created database system for users to access thousands of pages of information
- 1973 - ARPANET, then other systems, add email
- 1970s - French Cyclades system experimented with internetworking which contributed to Xerox creating a system with random access and reliable packet switching
- 1977 - U.K. and France start Open Standards Interconnect committee (OSI)
- 1980s - NSFNET (National Science Foundation) created for universities and government agencies
- 1991 - First Web Page went live, published by Tim Berners-Lee in U.K. who named the "World Wide Web" through the title of his research paper and invited all people to collaborate
- 1998 - ICANN (Internet Corporation for Assigned Names and Numbers) founded

The ARPANET in December 1969

Literature

Numerous sources that provide accountings or references to the history of the internet have a U.S.-centric bias, such as:

- Papers published on the internet from a variety of professional, university, and technical sources
- Numerous early contributions to the internet were not well documented so are not well known today
- Television programs made in the U.S. focus mainly on U.S. contributors
- Individual interviews and people writing their own version of the development of the internet often contain a personal bias and inaccuracies



Counter Arguments

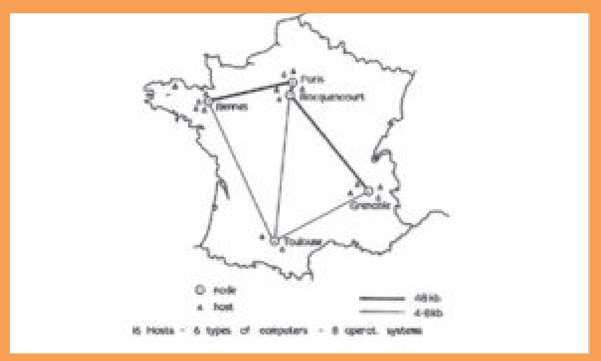
- The United State, being physically larger than France, the UK, or other countries involved in early network development, solved issues that were later applied to grow the internet globally
- The United States has invested significantly in the research and development of the internet, and this investment has led to significant breakthroughs and advancements.
- It is common practice for countries to write history from their perspective and with patriotism, however this can create tensions with other countries

Future Implications

- As other countries have become more independently involved in the internet and network development, they have become more vocal to correct the noninclusive narrative
- The cultural momentum created by the incomplete and U.S.-centric narrative has lead to legislation and actions from the U.S. which has lead countries to consider a "clean-slate" internet architecture
- Collaboration with other countries has been strained, with the goal of sharing data, infrastructure, and research, however France, Germany, Israel, and Japan have expressed concerns

Conclusions

- The content of historical writing, which is usually considered factual by the reader, is often skewed by the patriotic or personal bias of the author which can create a plethora of unforeseen problems in the future
- As long as there have been inventions, there have been claims and counterclaims of precedence
- There is no single person or group of people that created the internet, just as there is no single project which became the internet, many individual networks and global advancements evolved and converged to become what is now the internet
- It is crucial to write accurate and complete historical documentation that gives credit to the contributors of important technologies, especially of systems that affect multiple or global entities
- In order for continued global cooperation and collaboration, it is critical not to ignore the contributions of all of the players
- ICANN and the state of the internet are at risk of becoming fractured if the histories of the past, current, and future inventions are not recorded more completely and accurately
- Internet fragmentation has gained traction, however this would make censorship and surveillance easier as well as risk creating a greater divide between
- Even small contributions, such as British student Nicola Pellow writing the first generic browser while in Switzerland, have creating lasting impacts, as it was the wide availability of the World Wide Web that allowed it to catch on the way it did



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