**ADDIS ABABA INSTITUTE OF TECHNOLOGY**

**CENTER OF INFORMATION TECHNOLOGY AND SCIENTIFIC COMPUTING**

DEPARTMENT OF **SOFTWARE ENGINEERING**

Compiled by:

Rodas Workicho - ATR/5407/11

Submitted To: Mr. Fitsum Alemu

March 2020

# History of the Internet

Before 1957 computers couldn't multitask, a process called batch processing. This proved to be ineffective since computers where getting bigger and bigger. To that end, they were stored in spacious cool rooms. This meant that computer specialist couldn’t work with the computers directly because of the heat. They needed to connect them and operate them remotely. Computer during this time required a lot of manual work of rewiring and plugging proving to be ineffective and wasting time and fraying the developers´ nerves. The year 1957 marked a big change. A remote connection had to be installed so the developers could work directly on the computers. At the same time the idea of time-sharing came up. This is the first concept in computer technology to share the processing power of one computer with multiple users. In October 1957 during the period of Cold War the first remote satellite was launched. This satellite was named Sputnik 1 and was sent to orbit by the Soviet Union. In order to secure America's lead in technology, the US founded the "Defense Advanced Research Project Agency" in February 1958. At that time, knowledge was only transferred by people. The DARPA planned a large-scale computer network in order to accelerate knowledge transfer and avoid the doubling up of already existing research. This network would become the Arpanet. Additionally, three other important concepts were developed that were crucial to the creation of the Internet: The concept of a military network by the RAND Corporation in America, the commercial network of the National Physical Laboratory in England, and the scientific network, Cyclades, in France.

The scientific, military and commercial approaches of these concepts are the foundations for our modern Internet. Let's begin with the Arpanet, the most familiar of these networks. Its development began in 1966. Universities were generally quite cautious about sharing their computers. Therefore, small computers were put on front of the mainframe. This computer, the Interface Message Processor, took over control of the network activities, while the mainframe was only in charge of the initialization of programs and data files. At the same time, the IMP also served as interface for the mainframe. Since only the IMPs were interconnected in a network this was also called IMP-subnet. For the first connections between the computers the Network Working Group developed the Network Control Protocol [Network Control Program]. Later on, the NCP was replaced by the more efficient Transmission Control Protocol. The specific feature of the TCP is the verification of the file transfer. Let's take a short detour to England. Since the NPL network was designed on a commercial basis a lot of users and file transfer were expected. In order to avoid congestion of the lines, the sent files were divided into smaller packets which were put together again at the receiver. "Packet Switching" was born! In 1962 American ferret aircrafts discovered middle and long-range missiles in Cuba, which were able to reach the United States. This stoked fear of an atomic conflict.

At that time information systems had a centralized network architecture. To avoid the breakdown during an attack, a decentralized network architecture had to be developed, which in case of loss of a node would still be operative. Communication still used to work through radio waves, that would have caused problems in case of an atomic attack: the ionosphere would be affected and the long-wave radio waves wouldn't work anymore. Therefore, they had to use direct waves, which, however, don't have a long range. A better solution was the model of a distributed network. Thus, long distances could be covered with a minimum of interference. Another milestone followed with the development of the French network "Cyclades". Since Cyclades had a far smaller budget than Arpanet and thus also fewer nodes the focus was laid on the communication with other networks. In this way the term "inter-net" was born. Moreover, Cyclades´ concept went further than ARPA's and the NPL's. During communication between sender and receiver the computers were not to intervene anymore, but simply serve as a transfer node. Cyclades´ protocol went through all machines using a physical layer that was implemented into the hardware, providing a direct connection with the receiver – an end-to-end structure. Inspired by the Cyclades network and driven by the incompatibility between the networks, their connection gained in importance everywhere.

The phone companies developed the X.25 protocol which enabled communication through their servers – in exchange for monthly basic charge of course. DARPA's Transmission Control Protocol was to connect the computers through gateways and the International Organization for Standardization designed the OSI Reference Model. The innovation of OSI was the attempt to standardize the network from its ends and the channel's division into separate layers. Finally, the TCP assimilated the preferences of the OSI Reference Model and gave way to the TCP/IP protocol – a standard which guaranteed compatibility between networks and finally merged them, creating the Internet. By February 28, 1990 the ARPANET hardware was removed, but the Internet was up and running.

# Evolution of Four Popular Sites

CD Baby

Cdbaby.com

Cdbaby is a website built by Derek Sivers for independent musicians and it is the largest provider or independent music.

I chose to review this website because I had recently read Derek Sivers's book Anything You Want which talks about his journey while creating this enterprise. I wanted to see firsthand what he built during the time he mentions in the book.

December 5, 1999

The website looks like it was designed primarily with HTML and has no visible CSS design. The design uses 3 cells of a table to layout the structure and make it appear as though it has some sense of beauty. The website has only two main uses: submitting music and buying them. It has a respectable search feature that help you browse through the different assortments of independent music. Although the links and descriptions are neatly laid out, the odd color choice is not pleasing to the eye, at least in this generation.

March 5, 2005

There is no discernable change after 6 years of the start of the company. This may be due to Derek's notion that the company should remain small and serve the community as noted in his book.

October 31, 2013

The web design is now much improved with attractive colors, appealing icons, and responsive buttons. The scale of improvement shows that Derek had decided to employ more web designers to help him improve on the structure and design of the website. The website has noticeable adaptations of CSS (The buttons change color when you hover). The website has a headprint and a footprint with various information about the company.

March 1, 2020

The website now has an incredible look and feel to it. It is up to standard when it comes to the conventional designs accepted in this day and age. The website doesn't have any external ads, proving that the website remained a business platform primarily.

Facebook

Facebook.com

Facebook is a social media website used by a quarter of the population of the world. It is a platform for sharing stories, videos, and ideas across the world.

I chose to review this website because I always wondered whether it had a different look back in the day. During my time using Facebook, I have known it to remain static in terms of its looks starting from the colors in the page to the logo in the header. I was curious to find out if it always had been that way.

January 21, 2004

The website shows a different company than what we are acquainted with. It was clearly not owned by Mark Zuckerberg at this time. We can see that domain names were bought and sold back in the day as well.

April 15, 2006

During this time, the website was primarily intended for university students as stated in the body of the dialog of the website. The structure includes a few buttons, text areas and labels. There's no discernable CSS implementation. The colors are simple and the logo is the name "facebook"

November 1, 2011

Facebook now adapted its current look and will not change it for the foreseeable future. The website has JavaScript enabled by default. This created instability in the website as it repeatedly refreshes during my observation. To getter a better view of the website I changed my browser to the old and archaic internet explorer and it seemed to work fine in that. This snapshot shows that Facebook employs a careful validation when signing up. Other than these changes there is no change in the color and design of the website.

March 28, 2018

Facebook definitely looks better now, with more appealing icons and carefully picked colors. Although it still looks below standard, compared to many other social media websites, I believe the density of its features and services is enough to allow its minor deficiencies.

Hot or Not

Hotornot.com

I chose to review this particular site for my third evaluation because this was the first viral website during the 2000s dot com boom.

Up until 2012 the website had a significant code execution that didn't allow me to view it in my chrome web browser. This may be related to the JavaScript implementation on the website. But judging from the transformation within that period of time, the website hadn't changed majorly.

February 4, 2012

The website has a good color palette choice for the time as well as good implementation of CSS. It doesn't have any animated features or responsive components in the homepage. The buttons have hover features but that's how far the design implementation went. Web Archives doesn't allow photos of individuals to be portrayed in its website, I learned.

March 3, 2017

This websites influence went down to zero, as all viral things must come to an end. It now has a beautiful skin, perfect color choice and discernable header and footers. There is no aggressive use of CSS or the like.

March 1, 2020

There's no change after 3 years since 2017. The colors and design look the same hinting that the company has stopped working.

Apple

Apple.com

I chose to review this website for its extremely beautiful design and complicated animations. I am curious to see what it was like at the beginning.

February 8, 1999

In this time, internet was at its infancy and we can't expect much from websites. However, Apple delivered a compelling and interesting implementation of html. It had animated headers (simple presentation of labels) all kinds of links buttons and images. The website is easy to use with all the features one click away. Although the website was user friendly, it had a long way to go to be up to today's standards.

April 8, 2005

Over the six years, the website had shown a slow and steady growth in terms of the design and ease of use. The websites bulging images are uncanny. Although it doesn't have any major step in terms of technology use, Apple had learned to optimize what it had and be creative with it. There are still no noticeable CSS features but Apple had, at this point in time, included a responsive navigation panel.

June 30, 2012

With more resources in their hands, Apple surprisingly went for a more minimalist, albeit good-looking, view. They retained the navigation panel and included some videos but all in all, nothing has changed in terms of their feature usage. Being a business website primarily, they made the buying process extremely easy with easy steps and complete validations.

March 4, 2020

Now we come to the more exciting implementation of all the features currently available. Apple uses animation when scrolling, allowing you to have a more immersive experience. The colors are more comprehensive and but remain minimal allowing the user to have A+ experience. The structure and layout of the content is impressive to say the least. Granted, the website takes quite a lot of time to load disrupting the experience but it is worthwhile nonetheless.

Amazon

Amazon.com

I chose to review this website because its creator, Jeff Bezos, is the richest person in the world with around $130B.

June 11, 2008

The website has a really basic, unimpressive design. It certainly uses CSS but one can easily reproduce the same skin with tables in HTML. However, this layout has enabled amazon to cram as many products as they want into the front page of the website. The website is riddled with pictures of products with the left section of the screen reserved for links to various categories offered by the company. There's no compelling color choice just a background of white and some hints of orange and blue.

July 1, 2012

Amazon made it so that they can use empty spaces to show advertisements of their own product which is smart but unattractive. The now have a very simple navigation button at the top, removed the layout and went with simple grid view showing their latest line of products. This more minimalistic approach will make the customer less overwhelmed and they won't be tempted to leave. Amazon still doesn't have a noticeable change in color or view at this time.

April 30, 2015

The website now looks significantly button with carefully picked colors and layouts. The front page now has a more comprehensive navigation button, suitable for an online shopping website. As you scroll down you can see a neatly presented line of product which are appealing to the customer's eyes. The category navigation is now tucked next to the search bar located in the header. This is a better use of space and is now implemented by most websites.

March 4, 2020

Five years later there is no discernable change from the previous review I made although the presentation is neater. There's no animation still but more responsive buttons. It's safe to say website is now geared toward pleasing the customer which it does so remarkably.

# Guidelines for Evaluating Websites

Principle 1: Perceivable: The information displayed on the website should be done so in a way that makes it easy for the user to see.

* Text alternatives: the websites may use several known symbols instead of words to describe information
* Time-based Media: for some videos or media, the website must include transcripts
* Adaptable: the website should adapt to the various aspect ratios and positions users put it in. Additionally, it should be able to transform to simpler layouts without losing information
* Distinguishable: the sections of the websites should be made so that it is easier for the user to distinguish between information

Principle 2: Operable: Every component must work

* Keyboard accessible: all the functionalities must have keyboard shortcut alternatives
* Enough time: the animations with text should be timed so that the reader has enough time to finish reading
* Seizures: The colors chosen by the designers should account for users prone to seizures
* Navigable: make it easier for users to find information in the website easily

Principle 3: Understandable: the user interface must be friendly and easily understood

* Readable: the website should support several languages aside from English. It should also avoid abbreviations, unusual symbols and cater to the audience's reading level
* Predictable: the experience of the website should be intuitive
* Input Assistance: the website should have a feature that assists users and corrects them

Principle 4: Robust: the code must be accessible to variety of agents

* Compatible: the website should be well structures for web scrapping applications to work easily with it

Source: W3 Consortium