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**MEDST 255: New Technologies**

***The Cloud: Cloud Computing Services***

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Smartphone users everywhere are undoubtedly familiar with the so-called “cloud.” The owners of such phones are continuously asked if they would like to save things to “the cloud,” or to accept an unreadable set of “terms and conditions,” which I’m sure most of them end up just clicking “yes” to. My question for all of these smartphone users is, “Do you even know what you’re saying yes to?” Much more than simply a fluffy white blotch in the sky, “the cloud” is a complicated piece of new technology that allows users to access countless services and applications on a single device, like their smartphone.

While the potential of cloud computing has only recently started to be truly explored, the technology has actually been around for over 50 years, albeit in a more primitive form. According to *Time Magazine*, one of the first mentions of a cloud computing system came in 1955 by computer scientist, John McCarthy when describing his theory of time-sharing (Pullen). McCarthy’s theory revolved around the idea of “an operating system that permits each user of a computer to behave as though he were in sole control of a computer, not necessarily identical with the machine on which the operating system is running” (McCarthy).

Fast-forwarding to the modern technological era, the theory of time-sharing is perhaps best explained by a brief case-study of Apple’s iCloud. Practically all of Apple’s hardware products, be it iPhones, iPads, iWatches, or Macs, are able to utilize Apple’s cloud services. The service offered by the iCloud is predominantly online storage. If someone has an iCloud account that they save things like apps and media files to, then they can log into that account on any Apple device and access that same exact data. By letting users access their saved data, Apple’s iCloud allows them to act like they’re controlling a single computer, despite being on different machines.

Whereas the iCloud is far more cloud-like in that it uses little on-site hardware, and is able to be accessed in virtually remote locations because of its wireless capabilities, mid-20th century realizations of McCarthy’s theory required larger machines, more wires, and were far less expansive (Pullen). According to Danny Sabbah, a former chief technology officer at IBM, as the century and computer technology each progressed, time-sharing theory grew less popular because of the rise in domestic computing (Pullen). Since people could have their own desktops at home, and save things to a variety of discs and drives, they had no need for time-sharing. Sabbah attributes the re-popularization of time-sharing theory, or cloud computing, to the rise of the smartphone, saying that the relatively small storage of phones is the real culprit (Pullen). This attribution makes sense when considering the evolution of contemporary technology such as Apple’s iPhones. I remember having an early version of the iPhone that only had music that I’d bought from iTunes, and an appstore that was very much lacking. As the new iterations of the iPhone came out, the appstore continued to expand until there wasn’t enough storage on the phones to accommodate all of a users desired apps in addition to their media files, contacts, and other data, hence the creation and popularization of modern cloud computing services such as the iCloud.

Nowadays, rarely is cloud computing referred to as “time-sharing,” instead using aliases like cloud services, or simply “The Cloud.” The idea behind the new-age cloud computing technology is that it is a way to provide its users with a variety of services that use a relatively small amount of hardware, with everything being linked wirelessly back to the service provider’s centralized primary hardware; Rather than using large computers linked by wires, like with time-sharing, users have more room to roam. The providers of cloud services are now able to allow their consumers to use the products digitally, rather than in a physical format, the reason behind cloud computing’s success with mobile technology. Bradley Mitchell of Lifewire.com effectively illustrates this concept by describing how the ever popular Netflix streams movies and shows over the internet rather than sending out DVDs to their customers, like they had to in the company’s early days (Mitchell).

Cloud computing offers a myriad of different services, such as online storage, blogging, and streaming. Perhaps the most familiar, and widely used, forms of cloud services are applications that are only available for use by way of the internet, the aforementioned iCloud and Netflix services for example. These types of cloud services are known as Software-as-a-service models, or Saas, and are practically unavoidable in the technological world of today. Anyone that uses a service such as Google Apps is using an Saas model cloud service (Mitchell). These types of cloud services allow for people to access a theoretically endless amount of files and data in the palm of their hand. The two lesser known models of cloud computing are Platform-as-a-service, Paas, and Infrastructure-as-a-service, Iaas. Where with Saas models, consumers simply use the applications provided by the platform online, with Paas models, consumers are doing things like actually designing applications and is more suitable for businesses (Mitchell). Iaas differs from the other two models in that it puts more of the cloud’s maintenance in the hands of the consumer, and may require more hardware as a result. In a sense, each model is a next step up in responsibility for the consumer: Iaas gives them full control, Paas slightly more, and Saas the barebones use of the cloud computing services.

While cloud computing services can be difficult to understand, it important to at least have an idea of what you’re getting yourself into when you save something to “the cloud.” With cloud computing among the most cost effective, lightweight, and easy to use technology available, it is sure to continue in meteoric rise in popularity. The ability to access any piece of media or data, across a variety of devices, without having to meticulously upload the same files to each is a game changer.

**Bibliography**

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