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# The Effect of Cloud Computing in Societies

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**Abstract**
The "Cloud" what an awesome new word in technology! It emerges as a successive technological application that is suitably deployed without the requirement of traditional installment of comprehensive and extended architectures. This study explains how Cloud Computing affects societies in term of data privacy, data security and technicians trends. The introduction cautiously elaborate on Cloud Computing and some of its conceptual characteristics it tenders, while the rest of the paper explored on the impact of Cloud Computing in societies and its significance that will create intuitiveness for societies whether Cloud Computing can be fully adopted.

Keywords: Cloud Computing, Middleware, society, horizontal communication;

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## 1. Introduction

The term "Cloud Computing" is used in this present time to qualify most of the computer network diagrams designed to represent internet. But in point of view it can be described as a host system that delivers services through internet. It is quite different from the traditional computing that the consumers normally access information over the internet by the use of routers, modems, servers, switches, and even considering the hard disk space of the system being used.

The drastic ways of migrating from traditional system into horizontal communication network system around the Cloud has established a fundamental cultural transformation by which the organizations in the societies are effectively transformed by the grip of technology. And the societies have been attracted with the shift in technological era which resulted to a great challenge between the institutional environments and the rapid advancement in technology.

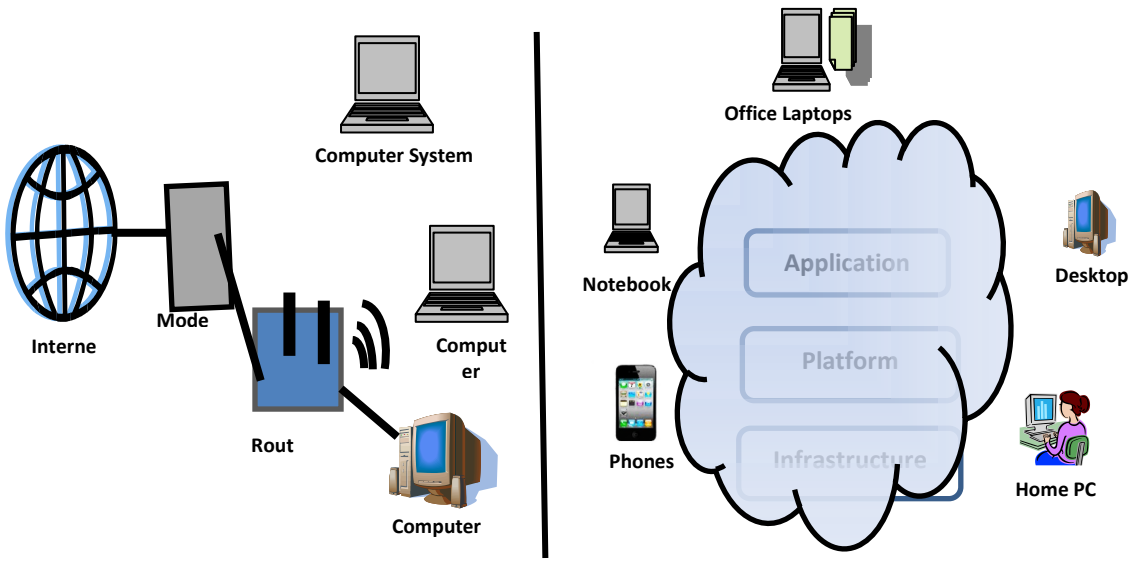


Figure 1. Example of traditional and cloud computing

## 2. Literature Review

The term Cloud Computing has gained numerous definitions from various authors and writers. The term Cloud Computing is defined as a software that mediates between disparate applications across computing platforms [1]. According to [2], Cloud Computing is information technology offered as a service, it eliminates the need for organizations to build and maintain expensive data centres. They also stressed that it provides elastic resources that increases business continuity by providing inexpensive disaster-recovery options and reducing the need for organizations to maintain a large IT staff. While along the line [3], Cloud Computing defined as the assemblage of both hardware and software that necessitate the deliverance of Cloud service models through internet or a private network.

[4] defines Cloud Computing as a recent marvellous computing model that aspires to release devoted, specialized and authenticated vital computing services to the societies. Cloud Computing applications are designed to alternatively ease the traditional computing ways of operating applications, updating and frequent maintaining of hardware.

A Cloud Computing service has its own characteristics which are different from the traditional hosting, [5] examined it to be five basics, as a robust computing technology, self-managed platform, neutral base service usage, central service paths, and pay as you consume billing system. [6] Thought Cloud Computing is nearly indefinable, but stretched out five Cloud Computing findings as:

- It is self-service based usage and low cost.
- It is flexible to the extent that a user can take small service when needed.
- It is virtualized infrastructure; completely controlled by the service providers.
- It is pay as you go; simply pay for the services needed to use at the moment and let go of it when no longer needed.
- It is centralized monitored by the trusted based service distributor.

The basic request of the clients and the trades are being observed by a central server administrator for smooth running of the services. It uses a regulation called protocol and a special kind of software known as *Middleware* [1]. The term Middleware is a stand-alone application that acts as glue between two or more software applications. It allows data to be shared between two different sides of application with a serious bond connection.

[7] reviewed in the article "Definition of Cloud Computing" which was update in the National Institute of Science and Technology (NIST) that Cloud Computing models are currently available in four categories in term of deployment as shown in figure 2 below.

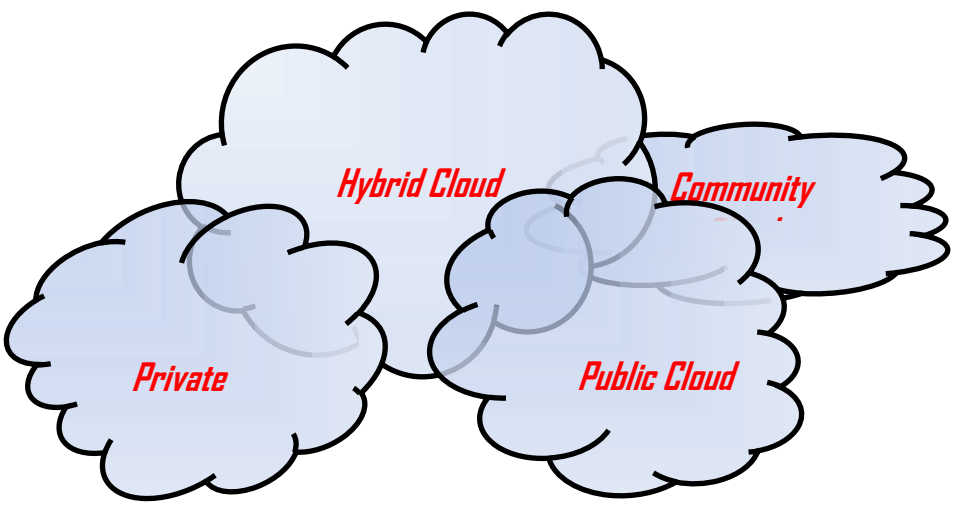


Figure 2. Cloud computing models

- ***Private Cloud Computing*** is a system that operates solely for an organization, all its data remains in the host under the control of the main service provider; it costs much more compare to the rest Cloud models in term of implementation and deployment.
- ***Public Cloud Computing*** is typically owned and managed by an off-site or third party provider, it mostly classified as "pay as you go" and the billing is accessed by the subscription; it costs less than private Cloud in term of set up. Examples are google Apps, iphone Apps,
- ***Hybrid Cloud Computing*** is the combination of at least one Private Cloud Computing and at least one Public Cloud Computing, it is sustained by both internal and external providers; it also increases security, privacy and auditability compare to the Cloud models above.
- ***Community Cloud Computing*** system is shared among number of organizations with corresponding interests and requirements such as policy, mission and compliance. It can be operated, retained and regulated by the organizations or third party. Community Cloud helps organizations in reducing charges during and after stationing because cost are being split to the organizations involve [7].

## 3. Classification of Cloud Computing

Cloud Computing services are broad classified into three categories [8] as shown in figure 3.

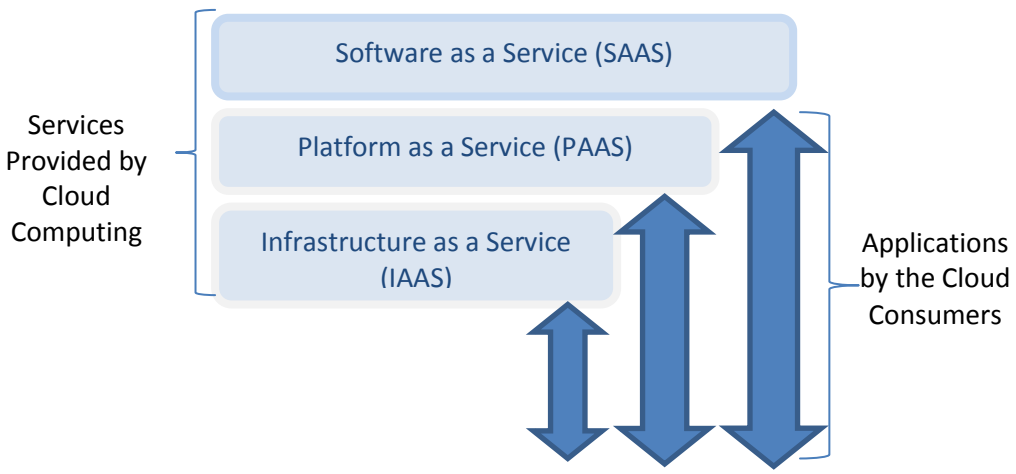


Figure 3. Classification of cloud computing

- **Software as a Service (SAAS)**: This type of Cloud Computing model rescues applications through the internet as a service, it provides the required operation to numerous users, customarily using internet, the equipment's being used are all provided by the service provider. Such services as google, gmail and hotmail are prime examples of SAAS.
- **Platform as a Service (PAAS)**: This involves deployment of service to a rented hardware, storage capacity and operating system depending on the organizational activities. PAAS allows organizations to have control over the deployed applications and environment configuration can be changed and upgraded frequently; a typical example is facebook social network.
- **Infrastructure as a Service (IAAS)**: In this aspect of Cloud Computing model, the service providers are liable for servicing and administering of the services. The organizations only require to source and make ready of the equipment's that will be needed for smooth

operations, such as the storage space and networking infrastructure. The good example of such is the telecom services.

## 4. Effects of Cloud Computing in Societies

Society is the totality of relationships among humans or a large social group of people sharing the same geographical or virtual territory, subjected to the same authority. The world is now in frequent transitional period between divergent forms of technological innovations in societies. This has escalated into a wide transformation in information technology.

It has been viewed that when Cloud Computing was initiated, it was established with a gaze to give the societies a scalable and highly flexible conducive working environment compared to the traditional information technology methods. However, Cloud Computing has managed to seize most of the enterprise to a great extent leaving other aspect of technologies behind.

The drill of Cloud Computing is to attain a reasonable solution, but the gadgets have brought a lot of changes to the internet and the societies where most of the social networks are replacing search engines [9]. [10], known for his advocacy of “free software”, says that Cloud Computing is just pulling the attention of individuals and the societies into a pitfall, if users gradually adopt and depend on Cloud Computing, the system expenditures will eventually become exorbitant.

The basic fact remains that Cloud Computing is dangerous because it places one’s information in the hands of unknown companies that neither care about you nor your delicate data. The characteristics observed by [10] about Cloud Computing were accepted by most of the researchers. So why are the societies accelerating so quickly to Cloud Computing without critically examining the consequences? [10].

Despite the uniqueness and competence of Cloud Computing, there is still feature that needs urgent attention and this includes nothing but security and privacy. The future is questioned from the modern technological innovations and it would certainly require more cognizance assistance that can imitate from the current technological inventions that will suit society’s demands for global expansion [11].

Cloud Computing is accelerating marvellously, no doubt about it, but considering the rapid advancement that has become challenging to the societies, most of the information technicians will soon be out of job, how many institutions are up to standard in the field of Clouding? Organizations now employ those that acquire the knowledge transformation of Cloud Computing while recruiting and even retrench technician without cognitions of Cloud Computing. [12] in “The Big Switch” stated that the implications that are likely to be experienced by the societies and the world economy as a whole due to the transformation of information technology into service utilities are extensively large.

## 4. Demography

Cloud Computing technology is growing and becoming rampant in societies. Some selected companies in Northern Cyprus are the major focus in answering most of the questions asked in the context of the study. Questionnaires were administered to the random selected companies in Northern Cyprus, as shown in figure 4 below.

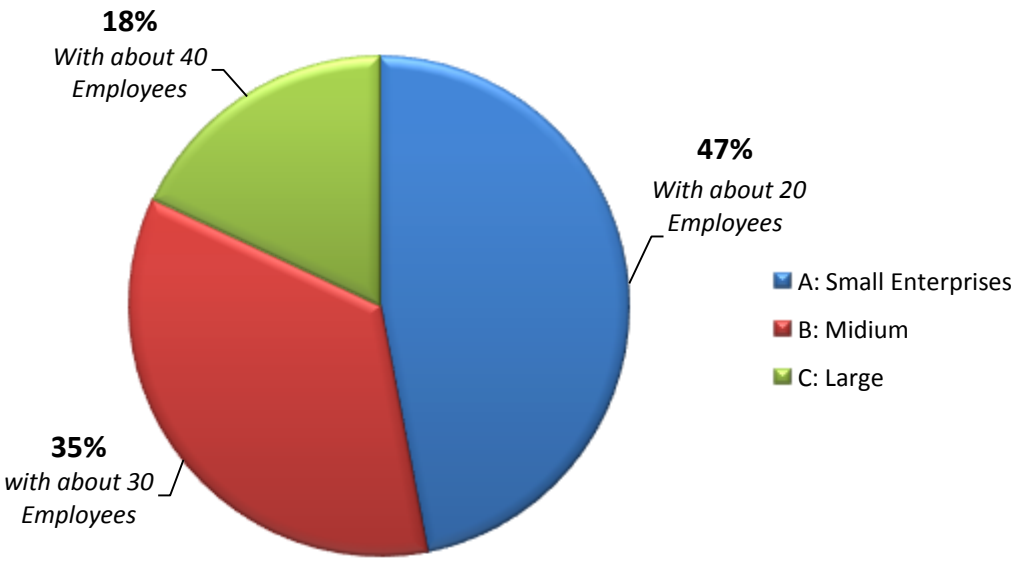


*figure 5: Chart for Percentage of Employees' in Organization*

The organizations that responded to the questionnaires were categorized into small, medium and large represented with A, B and C respectively for better, easy and understandable computation. Majority (47%) are from small organizations with only 20 employees, while (35%) are from medium organizations with 30 employees, and the rest (18%) from a large organization with about 40 and above employees.

This result achieved from these organizations would have been used to generalize the effect of Cloud Computing in societies as the fact remains that data privacy and security are yet to be well synthesis in this fast growing technology. [13] states that the goal of qualitative finding is voluntarily for conception instead certain part of the society will be perceptively purview for larger societies.

Without exception, the collected data for security and privacy from responded organizations is analysed for better understanding. The cumulative data of the respondents from all the three categories of organizations that disagreed on Cloud Computing data security and privacy is 60%, while 37.4% of the respondents from all the three categories of organization agree on Cloud Computing privacy and data security. The 2.6% of the remaining respondents lack idea of their organizational data storage centre. Figure 5 below shows the respective cumulative analysis of Cloud Computing effects in terms of data security, privacy and technician trends in organizations.

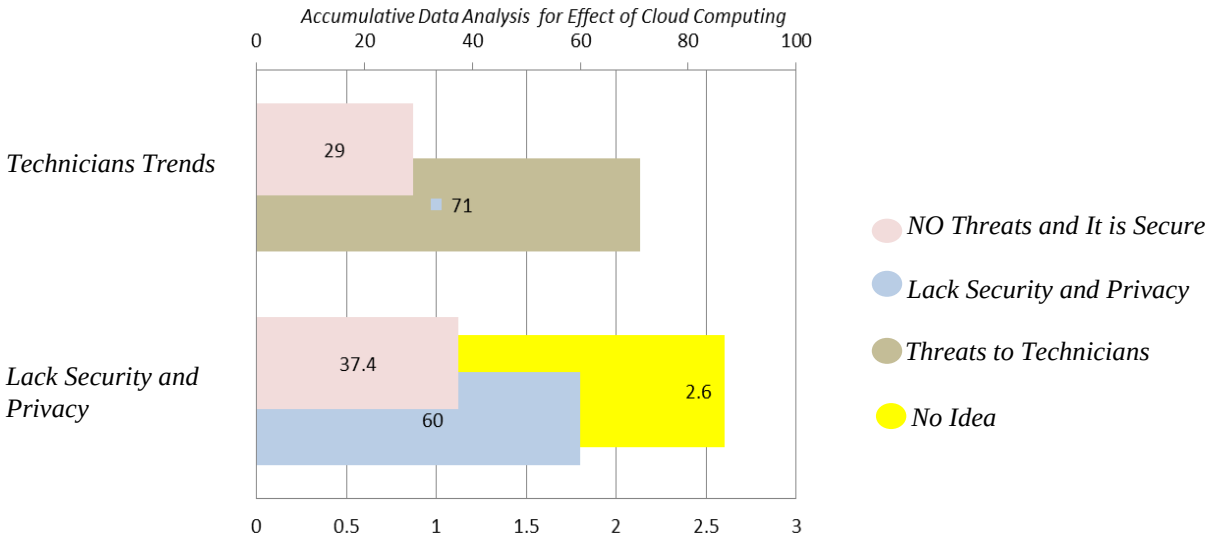


Figure 5. Data analysis for security, privacy and technicians trends in cloud computing

In the case of technician trends in Cloud Computing, most technicians see Cloud Computing as a threat brought to their organizations, 71% of the respondents from the three categories of organizations strongly agree that Cloud Computing is a threat to technicians. That since migrated to Cloud Service their organization has stop recruiting technicians and the ones already in the organizations are being transferred to different departments. 29% of the respondents disagree with the fact that Cloud Computing is a threat to their organizations. This is also shown in figure 5.

Cloud Computing is undoubtedly fast and scalable means of executing daily work activities in societies. But from the above analysis shown, trends in technicians, data security and privacy are not significant benefits values of Cloud Computing to societies. Majority of the societies are still contemplating either to migrate to Cloud Computing and face the problems mentioned above or wait until Cloud Providers tackle the problems amicably.

## 6. Discussion and Conclusion

Cloud Computing is an exciting and welcoming technological development. This study has explored three important aspects in societies adopting Cloud Computing. Although it is well organized and consists of various services to the societies, the primary concern of every organization and individual in the societies is the security and privacy of their data and it is very important to note that everything has its pros and cons. International Data Corporation (IDC) [14] has conducted several surveys on Cloud Computing services and realized that data security and privacy are the enormous concern of the societies.

Similarly, Cloud Computing too has its wide host of disadvantages. It is advisable for the societies to examine the situation critically before fully adopting the system. Some of the factors that can affect the organizations in the societies are the lack of privacy, security and technician trends in Cloud Computing. The expanding nature of Cloud Computing in term of growth has called for the need of frequency data privacy and security analysis. The societies should be cautious of the peril and sensitivities present in the current Cloud Computing environment before adopting.

The speed at which societies take their information to the Cloud servers instead of keeping this information in their own machines is a devastating issue. Billions of individuals from different societies upload personal information, photographs, daily work activities, financial breakdown and office confidential reports to a site called "Cloud" owned by unknown companies, unknown destination with just known name such as google doc, facebook, etc.

Cloud Computing has been talked about, written about and even held different conferences around the world. Notwithstanding, questions and agitations still maintain it stands on what exactly it is, where it is useful and when [15].The briskly deviation of the scenery in Information Technology industry mandates participants to cultivate a high level of compliancy. Notwithstanding, the societies should scrutinize carefully and see if the Cloud service unrestricted movement is too fragile to adopt. A Clear theories and terminologies alone cannot absolutely resolve the problems of data security, privacy and technician trends in Cloud Computing. The Cloud vendors have to come together and find a way forward on how to rectify the said problems that most individual in the societies are complaining about, so as to maximize demands in the societies.

## 7. Future Work

Most of the researchers aspired that by 2020 Cloud Computing will dominate the societies in general due to numerous advantages it tenders, given access to information and tools wherever you are, allowing easy access for every individual in the societies from a Cloud network. Some experts noticed that societies are interested in accessing applications and data through the use of smartphones and netbook. Many of the researchers agreed that Cloud Computing will expand as the internet vapours and also expected more secure means of their data and information. Analysing Cloud Computing services is a fascinating and reasonable research subject. Details and characteristics of any new technology would be an added advantage for future research work.

We are yet to know what measures Cloud is taking to secure the privacy of individual data or what the Cloud is gathering. And at the same time comes the Weave Synchronization Service on the run with similar service as the Cloud Computing and better data encryption techniques that never visible to the operator of the server. Maybe, this will trigger the Cloud Computing for better security.

## References

[1] Armbrust, A. et al. *Above the Clouds: A Berkeley View of Cloud Computing Technical Report.* University of California at Berkeley, 2009.

[2] Jothy, R., & Arthur, M. *The Cloud at Your Service: The When, How, and Why of Enterprise Cloud Computing*. Manning Publishing Ltd., 2010.

[3] Winkler, J. *Securing the Cloud: Cloud Computing Techniques and Tactics* (1st edition). Elsevier Stores, 2011.

[4] Foster I., & Kesselman, C. *The Grid: Blueprint for a New Computing Infrastructure.* Morgan Kaufmann, 1998.

[5] Malcolm, D. *The Five Defining Characteristics of Cloud Computing,* [Online] 2009. Available from: http://news.zdnet.com/2100_9595_22-287001.html.

[6] Amrhein, D. *Forget Defining Cloud Computing,* [Online] 2010. Available from: http://ibm.ulitzer.com/node/1018801.

[7] Mell, P., & Grance, T. *The NIST Definition of Cloud Computing,* [Online] 2009, 5. Available from NIST website: http://csrc.nist.gov/group/sns/cloud-computing

[8] Vaquero, L.M. et.al. A Break in the Clouds: Towards a Cloud Definition. *ACM SIGCOMM Computer Communication Review,* 2009, 39n.

[9] Nuttal, C., & Gelles, D. *The Sociability Clicks with US Web Users,* [Online] 2010. Available from Financial Times website: http://www.ft.com/cms/s/2/67e89ae8-30f7-11df-b057-0144feabdc0.html.

[10] Ricciuti, M. *Stallman, Cloud Computing is a Stupidity,* [Online] Available from: http:/news.cnet.com/8301-10013-10054253-92.html.

[11] Bell, D. *The Coming of Post-Industrial Society*. A venture in social forecasting, Basic Books, 10 East 53rd Street New York, New York, 1976.
[12] Nicholas, G. *The Big Switch.* W.W. Norton, New York, 2008.
[13] Dawson, C. *Practical Research Methods.* How to Books Ltd., 2002.
[14] IDC. *Information Technology Cloud Services User Survey,* [Online] 2009. Available from IDC blog website: http://blogs.idc/ie/?=730.
[15] Bechtolsheim, A. *Cloud Computing and Cloud Networking.* Talk at UC Berkeley. December, 2008.