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# Cloud Computing

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***Abstract*— Cloud computing is Internet based system development in which large scalable computing resources are provided "as a service" over the Internet to users. The concept of cloud computing incorporates web infrastructure, software as a service (SaaS), Web 2.0 and other emerging technologies, and has attracted more and more attention from industry and research community. In this paper, we describe our experience and lessons learnt in construction of a cloud computing platform. Cloud computing is one of the today's most arising and needed technology and became popular for its flexibility, sharing resources, ease of maintenance, cost-efficiency etc., In very recent times, the cloud computing technology will have all its implementation in all ICT commodities and it became procurement model. In this paper, we characterize the problems in controlling the data and throw a keen limelight on the information security and various models that are proposed. Many existing research thrusts/systems has their own importance and same time drawbacks on maintaining the data security in cloud. The paper deals with much research advances in the area of data security concerns as information - centric security architecture over the cloud. The architecture deals for trusted computing, computation support encryption, advantageous of security over the cloud, which can be most benefit able in the vast area of Business Intelligence.**

***Key Words: Data Security, Big Data, Velocity, Volume, Variety, Value, Confidentiality***

## I. INTRODUCTION

### *A. What is Cloud Computing?*

Cloud computing involves distributed computing over a network, where a program or application may run on many connected computers at the same time. It specifically refers to a computing hardware machine or group of computing hardware machines commonly referred as a server connected through a communication network such as the Internet, an intranet, a local area network (LAN) or wide area network (WAN). Any individual user who has permission to access the server can use the server's processing power to run an application, store data, or perform any other computing task. Therefore, instead of using a personal computer every-time to run the application, the individual can now run the application from anywhere in the world, as the server provides the processing power to the application and the server is also connected to a network via internet or other connection platforms to be accessed from anywhere. Cloud computing is a general term for anything that involves delivering hosted services over the Internet. These services are broadly divided into three categories: Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS). The name cloud computing was inspired by the cloud symbol that's often used to represent the Internet in flowcharts and diagrams.

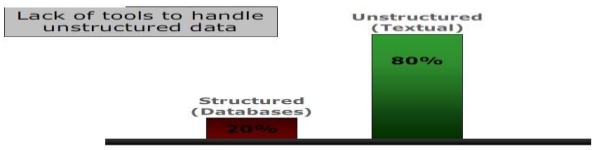
### *B. Challenges in Cloud Computing:-*

Though cloud computing have advantages in cost and man power saving side, it also have some drawbacks and challenges that plays a vital role in cloud computing. They are

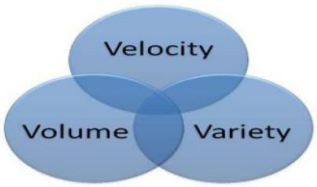
- Cloud Data Security
- Big Data Management.

### *C. What is Big Data?*

Big Data refers to datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze. This definition is intentionally subjective and incorporates a moving definition of how big a dataset needs to be in order to be considered big data. Big Data technologies as a new generation of technologies and architectures, designed to economically extract value from very large volumes of a wide variety of data



*D. Characteristics of BigData*




- **Volume:** The size of data is very large and in terabytes and peta bytes.
- **Velocity**: The pace at which data flows in from sources. The time plays a key role. The reasons for data getting generated faster includes.
- **Variety**: It includes structured, semi-structured and unstructured data of all varieties: text, audio, video, posts, log files etc

*E. Challenges on Big Data*

- **Data representation**: many datasets have certain levels of heterogeneity in type, structure, semantics, organization, granularity, and accessibility. Data representation aims to make data more meaningful for computer analysis and user Interpretation.
- **Data life cycle management**: We are confronted with a lot of pressing challenges, one of which is that the current storage system could not support such massive data. Generally speaking, values hidden in big data depend on data freshness. Therefore, a data importance principle related to the analytical value should be developed to decide which data shall be stored and which data shall be discarded. Analytical mechanism: the analytical system of big data shall process masses of heterogeneous data within a limited time. Non-relational databases have shown their unique advantages in th processing of unstructured data and started to become main stream in big data analysis.
- **Data Confidentiality**: most big data service providers or owners at present could not effectively maintain and analyze such huge datasets because of their limited capacity. They must rely on professionals or tools to analyze such data, which increase the potential safety risks.

"**Moving Computation is Cheaper than Moving Data**"

A computation requested by an application is much more efficient if it is executed near the data it operates on. This is especially true when the size of the data set is huge. This minimizes network congestion and increases the overall throughput of the system. The assumption is that it is often better to migrate the computation closer to where the data is located rather than moving the data to where the application is running. HDFS provides interfaces for applications to move themselves closer to where the data is located.

## II. Analysis of Security Issues in Cloud Computing

- Lack of employee screening and poor hiring Practices – some cloud providers may not perform background screening of their
- Privileged users such as cloud administrators usually have unlimited access to the Cloud data.
- Lack of customer background checks – most cloud providers do not check their customer's background, and almost anyone can open an account with a valid credit card and email.
- Apocryphal accounts can let attackers perform any malicious activity without being identified.
- Lack of security education – people continue to be a weak point in information security. This is true in any type of organization; however, in the cloud, it has a bigger impact because there are more people that interact with the cloud: cloud providers, third party providers, suppliers, organizational customers, and end-users.

## III. CONCLUSION

Cloud Computing is a relatively new concept that presents a good number of benefits for its users; however, it also raises some security problems which may slow down its use. Understanding what vulnerabilities exist in Cloud Computing will help organizations to make the shift towards the Cloud. Since Cloud Computing leverages many technologies, it also inherits their security issues. Traditional web applications, hosting, and virtualization have been looked over, but some of the solutions offered are immature or inexistent. We have presented security issues for cloud models: IaaS, PaaS, and IaaS, which vary depending on the model. As described in this paper, storage, virtualization, and networks are the biggest security concerns in Cloud Computing.

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Kavirajan Balakrishnan has been working as Assistant Professor with Mary Matha College, located at Nallakarupanpatti, Periyakulam, Theni District. He has qualified MCA., ME (CSE)., MBA(PMP). He has 4+ years of Software IT MNC experience and 4+ years of teaching experience. He is very much dedicated in research and in his teaching field to provide quality education which is a graceful and grateful service for Indian Society. Presently he is doing his research on Cloud Computing, Cloud Data Security, Big Data Analytics and Big Data visualization.