

Cloud Security - Hybrid Storage Model

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ABSTRACT

Cloud storage / Virtual Cloud providers in today's world have multiple users and multiple servers sharing multiple data spread across the world. Massive servers where data is stored are often referred to as "server farms" which run 24*7*365. Cloud companies tend to outsource their "server farms" to different satellite locations for reducing the cost incurred, and also replicate and store data at various servers. Cloud computing is an IT paradigm that enables access to shared pools of configurable system resources and higher-level services over Internet. This paper provides an insight on whether the data generated locally must be stored within the country or exported cross-border. This abstract is to find the issues in existing solution and to find out whether to Nationalized or Globalize cloud storage.

Keywords : CC- Cloud Computing, AI- Artificial intelligent, IOT-Internet of things, CIFS-.Common Internet file system, NFS – Network file system, IT-Information technology

I. INTRODUCTION

Internet has brought a new revolution in Information technology, industries has been steadily moving away from Local storage to remote, server based storage and processing - "Cloud".

Cloud computing is an on-demand service that stores and enables us to access data and services over internet. Cloud storage providers Such has Dropbox, Gmail, Facebook, Amazon web services and citizen services are increasing daily.

Objectives

With growing E-commerce and emerging Mobile apps, documents and media files are kept in cloud making it 'Digital assets'.



Figure 1. Global data center locations

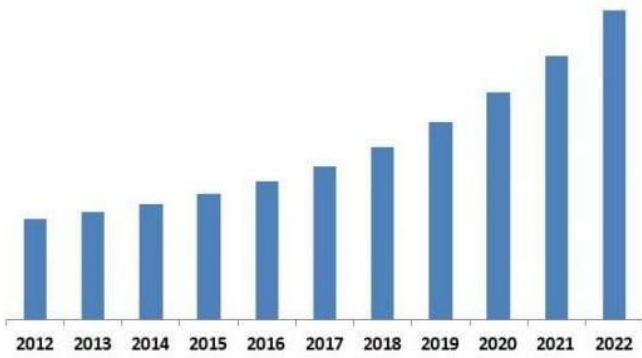


Figure 2. Data asset increase chart

With increase in digital payment and e-commerce the bigger concern is that if we put data into global cloud, security risk are heightened and it effects on our growth since we rely on foreign countries Data centers.

The objective is to provide a Make in India version of AI Local Data centers within Indian territory instead of Global storage which helps to boost the Indian IT industry. With recent Cambridge Analytica’s misuse of Facebook user data there is an urgent need for the Customers awareness of the fact about the storage they are using.

II. METHODS AND MATERIAL

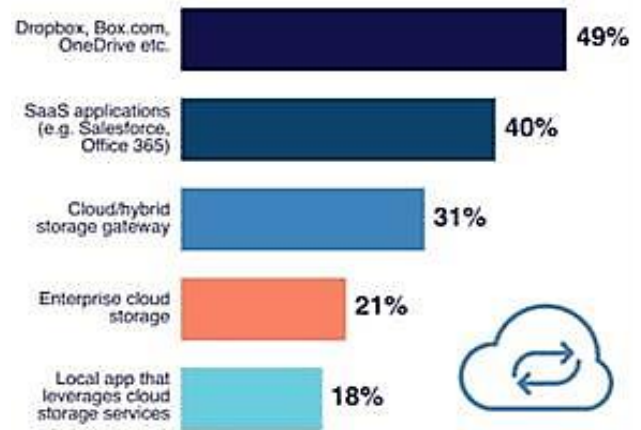
Cloud Computing is implemented using Virtualization technology; dynamic virtual



Figure 3. Cloud Companies

Cloud companies have varied customers and provide different type of storage space like Personal cloud (individual), Public cloud (social media), Private cloud(Enterprises) and Hybrid cloud (combination of Public and Private cloud).

Types of cloud storage in use



Source: Cloudbian Hybrid Cloud Storage Adoption Trends

Cloud companies outsource there Data centers to different satellite locations, and they usually replicate the data multiple times on various servers so as to ensure data safety in the event of some catastrophe (natural disaster, fire etc.).

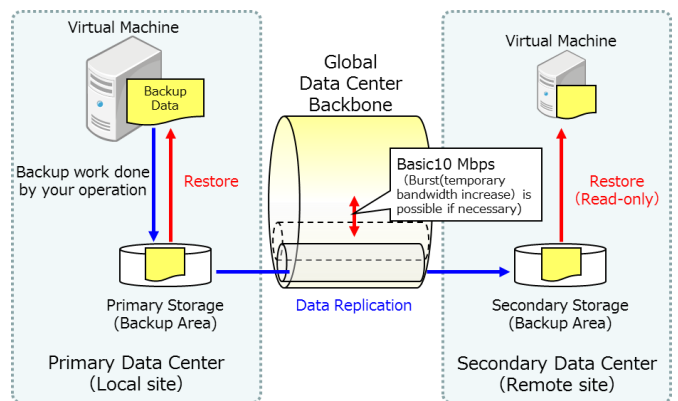


Figure 4. Global data storage

Need for Study

- ✓ Storage gateways are necessary to ensure that data stored in local Data centers infrastructures are optimized according to established standards, manage traffic and storage space.

- ✓ Implementation of new local Data Centers within Indian territory instead of outsourcing data created within India will give a boost to the Indian IT industry creating Employment, increasing innovation, results in revenue, protect national autonomy and position India better in the IT sector.
- ✓ Countries such as Russia, Germany, France, We need to design, construct and manage these data centers. Well designed services don't upload entire files everytime they change. They just upload the changes, saving connection bandwidth. The cost of setting up data centers is far less than the revenue generated by global companies in India.
- ✓ Indonesia, vietnam, Australia, Europe and certain united states federal agencies have mandated via their strict data sovereignty laws that citizens data to be stored on physical servers within country's physical borders.



Figure 5. Data centers

Already paytm has powered AI cloud computing platforms in India. Paytm AI cloud process, stores all consumer data locally in servers located in India

III. Issues and challenges

- ✓ Several global companies already exist in Indian market, it might be hard to completely store data locally.
- ✓ A major issue is whether data localization limit the access to any global network or does it reduce the ability of citizens and consumers to access and

contribute to online resources and opportunities globally.

- ✓ Data localization potentially burden relations between India and other countries.
- ✓ AI and IOT concepts in Cloud computing may be a major challenge since our local data server need to compete with the new inventions in AI and IOT.

Findings

A hybrid model – meaning a combination of both AI based local data centers and global data centers would be a better option to store the Digital assets.

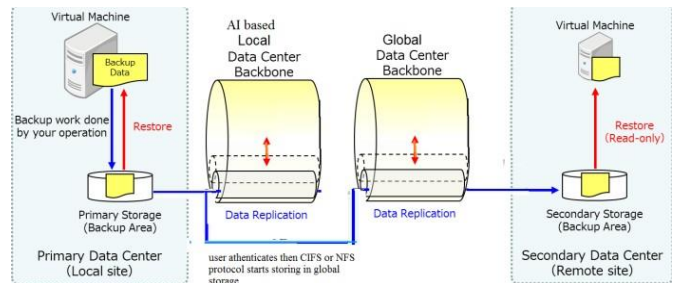


Figure 6. Hybrid Cloud storage

Further, only when customer authenticates then CIFS or NFS protocol should start storing data into global data centers otherwise data can be stored in local Data centers.

Conclusions

The Indian government's data localization push and with tremendous increase in data, creating a digital ecosystem "hybrid-cloud", which combines Local and Global cloud storage will facilitates and supports the needs of multinational companies across industries and customers.

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Cite this article as :

UMA S, "Cloud Security - Hybrid Storage Model", International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), ISSN : 2456-3307, Volume 4 Issue 7, pp. 159-162, September-October 2019. Journal URL : <http://ijsrcseit.com/CSEIT194729>