Cloud Computing For Sharing and Security through Social Networks-A Survey

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Abstract: Social network platforms have rapidly changed the way that people communicate and interact. They have enabled the establishment of participation in digital communities as well as the reperesentation, documentation and exploration of social relationships. It will become easier for users to share their own services, resources and secure the data via social networks. It presents a social compute cloud where the provisioning of cloud infrastructure occurs through friend relationships. In a social compute cloud source owners offer virtualized containers on their personal computers or smart devices to their social network. Cloud computing is a set of IT services that are provided to a customer over a network and these services are delivered by third party provider who owns the infrastructure and it is often provided as a service over the internet typically in the form of infrastructure as a service, platform as a service or software as the service. This paper described the different sharing of information and provide the security mechanism for defining the attacks in cloud computing.

Keyword: Social cloud Computing, Social networks, Resource Allocation, Security.

I. INTRODUCTION

Cloud computing has garnered praise for many reasons, most notably due to its ability to reduce overheads and costs for consumers by leveraging economies of scale to provide the infrastructure, platforms and software services. The providers such as Amazon (Elastic Compute Cloud) [EC2] rid users of the burdens associated with purchasing and maintaining computer equipment; instead compute resources can be out-sourced to specialists and consumers can obtain access to an "unlimited" supply of resources. Instead of its advantages, many businesses and end users are put off by an array of (perceived) reservations, as known in many studies[1].Two key issues are the notions of trust and accountability between resource consumers and providers. In this context, trust and accountability encapsulate several different aspects which are security, privacy, ethical practices, transparency, protection of rights, and issues concerning compensation[2]. By addressing these concerns there is a significant undertaking, and consequently, many international research programs have been emerged, covering issues such as provider certification and service level agreements. Cloud computing is a technology that keep up data and its application by using internet and central remote servers. Cloud computing can be considered a new computing paradigm with implications for greater flexibility and availability at low cost[3]. Because of this, cloud computing has been received a good deal of attention. The four deployment models operated by cloud computing are: Public, Private Community, and Hybrid Cloud. Each model has its own characteristics and especial features that suits to the cloud users Particular reasons in embracing cloud computing[4]-[5].The application of cloud in real time using the collaboration, business ,web services, cloud backup, employee productivity from cloud applications[10].

II. CLOUD SYSTEM

A Social Compute Cloud builds upon Seattle, an open source Peer-to-Peer (P2P) computing platform. Seattle was chosen as the basis for this implementation due to its lightweight virtualization middleware which we use to enable application extensible clearing house model which we extend to enable social allocation via preference matching algorithms[3]-[4]-[5].

A. Seattle

Seattle is an open source educational research platform designed to create a distributed overlay

network over compute resource (servers, PCs and mobile devices) donated by its users.[4] It features a lightweight virtualization layer (based on reply-a subset of python) that runs on a contributors machine and enables other users to run the applications across different operating systems and architectures[5].

B. Matching Algorithms

The case of complete preference rankings without differences there are polynomial-time algorithm that solve the matching problem for different objective functions. The empirical evidence, stability is considered important for successful matches[3]. The stability means that there is no pair of users who would prefer to be matched over their current match. The Deffered- Accepetance (DA) algorithm is the best known algorithm for two-sided matching and has the advantages of having a short runtime and at the same time always yields a stable solution[4]. The Welfare-Optimal (WO) algorithm yields the stable solution with the best welfare score (i.e., the stable solution for which the average rank that each user is matched with is lowest) by using certain structures of the set of stable solutions and applying graph-based algorithms. DA and WO can be used in such settings, but they cannot be longer assurance to find the globally accurate solution. In such settings, the estimate algorithm **Shift** which find's a constant match, with the greatest number of matched pairs for certain special cases. Finding the optimal solution for the matching problem with respect to the most common metrics: welfare or fairness, is NP-hard. DA and WO run in polynomial time (O(n2) and O(n4), respectively) and Shift's runtime is proportional to the squared length of the largest indifference group of all users[5]-[6].

C .Matching Service

To make smooth matching service to implement a encapsulation of the algorithms presented above. It can be used to either perform batch share for the group of users, or single sharing for an individual user[5]. It may appear unwanted to facilitate both of these settings ,The reason is simple: the matching algorithms perform best when batches of users are allocated simultaneously. It is unlikely that large batches of users will sequently request resources. Rather, need for the matching service will be stochastic [6].

III.METHODLOGIES OF CLOUD

In the cloud model, networking, storage and software infrastructure are provided as services that scale up or down depending on demand as depicted in the cloud computing model has three main deployment models which are private cloud, public cloud, hybrid cloud.

A. Private Cloud

Private cloud is a new term that some vendors have recently used to describe offerings that emulate cloud computing on private network. In the private cloud, scalable resources and virtual applications provided by cloud vendor are pooled together and available for cloud users to distribute and use. And it vary from the public cloud in that all the cloud resources and applications are managed by the organization itself, similar to internet functionality. Exercising on the private cloud can be much more secure than that of the public cloud because of its specified internal exposure. Only the organization and designated stack holders may have access to operate on a specific private cloud.

B. Public Cloud

Public cloud describes a cloud computing in the traditional maintenance, where are resources by dynamically provisioned on a fine delicious, self service basis over the internet, via web applications from an offsite third party provider who shares resources and bills on a fine grained utility computing basis. It is commonly based on the pay per use model for cloud optimization. Public clouds are small secure than the other cloud models because it places an extra burden of ensuring all applications and data accessed on the public cloud are not subjected to on the public cloud are not subjected to malicious attacks.

C. Hybrid Cloud

The hybrid clouds is a private cloud linked a one or more external cloud services, central managed, provision as a single unit, and constrained by a secure network. It supply virtual IT solutions through a mixture of both public and private clouds.

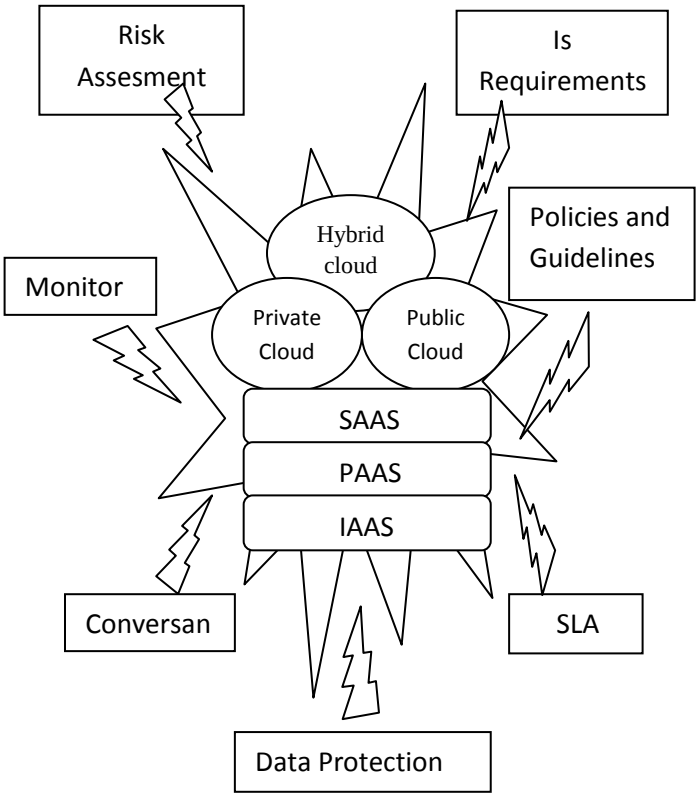

Fig-1 Cloud Deployment Model

IV. CLOUD COMPUTING SERVICE

Three cloud service models are infrastructure-as-a-Service, Platform-as-a-services and Software-as-a-Service.

A. Infrastructure As A Service (Iaas)

Infrastructure as a Service is a single tenant cloud layer where the Cloud computing vendor's dedicated resources are only shared with contracted clients at a pay-per-use fee. This greatly minimizes the need for great initial investment in the computing hardware such as servers, processing power and networking devices. The cloud has a compelling value proposition in terms of cost, out of the box. IAAS only provides basic security (perimeter firewall).

B. Platform As A Service (Paas)

Platform-as-a-Service (PAAS) is a place of software and developed tools hold on the giving servers. It is one layer above IAAS on the stack and abstracts away each thing. It offers an integrated set of development environment that a developer can tap to assemble their applications without having any trace about going on covered the service. It offers builder a service that provides a complete software development life cycle management, from organization to design to building applications to deployment to testing to maintenance.

C. Software As A Service (Saas)

Software-as-a-Service is a set of software issue model in which applications are hosted by a vendor or service provider and made available to customers over a network, usually the Internet. SAAS is becoming an extend prevalent delivery model as underlying technologies that support web services and service-oriented architecture (SOA) mature and new developmental approaches more popular. SAAS is also often associated with a pay-as-you-go offering licensing model. The architecture of SAAS-based applications is clearly designed to support many concurrent users (multitenancy) at once. The Software as a service applications are acquire using web browsers over the Internet therefore web browser security is vitally important. Web Services (WS) security, Extendable Markup Language (XML) encryption, Secure Socket Layer (SSL) and available options which are used in enforcing data protection transmitted over the Internet.

V. SECURITY IN CLOUD COMPUTING

A. MD5: It means [Message-Digest Algorithm 5], it generally used cryptography hash function with in 130 bit hash value, the process a variable length in the fixed length output is 130 bits. In the message is pad so its length is divided by 512. And the input message kaput into chunk of 512 bit.

B. AES: It means (Advanced Encryption Standard) [AES] is a symmetric-key encryption standard. Both of these ciphers has a 128-bit block size, with key sizes are 130, 192 and 256 bits, correspondingly. AES algorithm ensure that the hash code is encrypted in a greatly secure method. AES has a fixed block size of 128 bits and uses a key size of 130 bits. Its algorithm is as follows: 1. Key Expansion 2. original Round 3. Add around Key 4. Rounds 5. Sub Bytes—a non-linear substitution step where each byte is replaced with another according to a research table. 6. Shift

Rows—a replacement step where each rows of the state is shifted cyclically a certain number of steps. 7. Mixed Columns—a mixed operation which operates on the columns of the state, combine the four bytes in the each column 8. Add Round Key—both byte of the state is joint with the round key; each round key is derived from the cipher key using a key schedule. 9. Final around (no Mixed Columns) 10. Sub Bytes 11. Shift Rows 12. Add Round Key.

C. BLOWFISH: It is one of the most common public algorithms provided by Bruce Schneier. The blowfish is a variable duration key, 62-bit blocked cipher. No problem is known to be a successful touching this. a choice of experiments and research analysis proved the superiority of Blowfish algorithm over other algorithms in terms of the process time. Blowfish is the improved than other algorithms in throughput and power consumption.

D. RC5:The key length of RC5 is Maximum 2040 bit with a blocked size of 32, 64 or 128. The use of this algorithm is Secure. The speed of this algorithm is slow.

Algorithm

A = A + S[0];
B = B + S[1];
for i = 1 to r do
A = ((A Xor B) <<< B) + S[2 * i]
B = ((B Xor A) <<< A) + S[2 * i + 1]

E.Diffie-Hellman Key Exchange (D-H): Diffie–Hellman key replace is a exact method of exchanging cryptographic keys. It is a one of the initial practical examples of key replace implemented within the field of cryptography. The Diffie–Hellman key replace method allows two parties that have no prior knowledge of each other to jointly establish a shared secret key over an insecure communications channel. This key can then be used to encrypt following communications using a symmetric key cipher.

VI. APPLICATION OF CLOUD IN REAL TIME

A. Cloud Backup: Cloud backup it works some companies like to move business backup and disaster recovery data to cloud serves. The area of corporate cloud backup will continue to be sought after by companies for a number of years to come.

B. Collaboration Applications: The most important areas of collaboration applications will be for: Email, File Sharing, Online Video and Voice Conferencing. The low costs of cloud computing will make easier for decision makers to consider implementing it.

C. Business Applications: It provides tremendous opportunities to business firms to pay for what they have used. The Pay As You Go plan. Since companies don't have to actually purchase the software, they have access to the latest solutions. The availability of solutions such as CRM, ERP, HR, and Finance and Accounting on cloud based servers means a decrease in up-front investment and other issues of in-house deployment.

D. Web Serving: The web servers, management tools, analytical and business software are moving to cloud computing. Cloud based web infrastructure and software will save you a lot of money. Enterprises corporations are already benefiting by the low price.

E. Employee Productivity Applications: It used for improving employees performance and better reporting within the office is another type of cloud application being widely used at present. This will be looked into by many new and old businesses wanting increased accountability and efficiency within the workplace.

VII. SIMULATION RESULT

A. Cloud Year Wise Increase

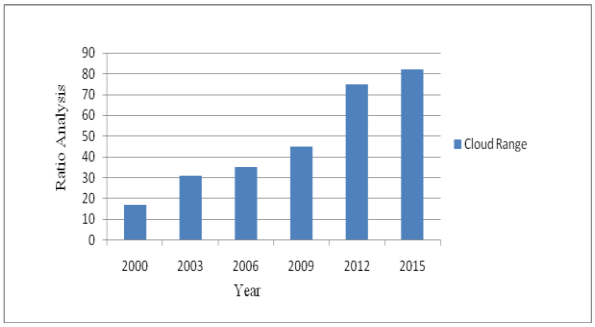

Fig-2 Yearly Report On Cloud Computing

The cloud mobility will growth from 17% ten years ago,31%seven years ago,35% five years ago, 45% three years ago75% and the cloud will more than double from82% now.

B. Reliability Ratio Of Cloud

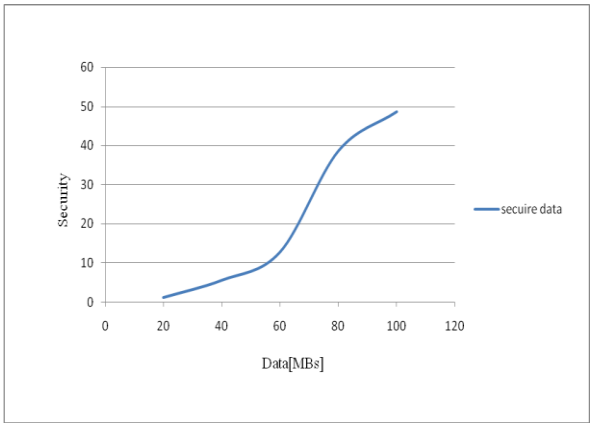

Fig-3 Reliability Ratio Of Cloud Using Security

The cloud reliability data[MBs] can store the data from the cloud computing in increase and decrease of the data storing values and ensure to secure the data from the cloud security.

C. Application Area of Cloud

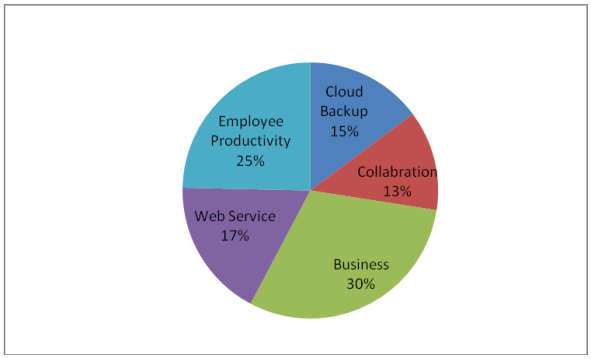

Fig-3 Application Area of Cloud Computing

In this figure can use to applications of the cloud computing.

CONCLUSION

The cloud method using the IAAS,PAAS and SAAS are secure the data in the cloud application. This cause using many application environment secure data to analysis to best and difficult to easily to controlled. And survey the applications of the cloud computing.

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