

## Smart and Sustainable Trust Access Control in Hybrid Cloud Network System for the development of Smart Cities

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### ABSTRACT

As technology grows in the development of Smart Cities, the concept of Cloud Computing and Internet of Things also considered as a key role player in Smart cities. With the help of cloud computing various services can be available on clouds. Citizens can use these services very easily through internet in their smart devices. The cloud is just a metaphor for the Internet. By using a Hybrid approach, companies can maintain control of an internally managed private cloud while relying on the public cloud as needed. At the same time, cloud technology is also associated with the major concerns like security, privacy and trust computing with respect to applications and information that are hosted in cloud environment. Current existing trusted cloud environment is seriously affected with service deployment overhead due to huge number of applications that are compatible for mobile applications and as well as desktop applications. Distributed cloud computing is a circulated design that serves the various partners to fulfill private and business needs. In this work, we propose a swarm based decision model to evaluate the trustworthiness of cloud service providers. An efficient operation is a key success to manage cloud heterogeneity, as it is a primary factor to serve users. We try to provide a hybrid selection and indexing scheme framework, which takes care of processing the information at the users end to extract their required data from cloud and increases the security reputation of the proposed work.

*Keywords : Internet of Things; Cloud Computing; Service Oriented Architecture; Infrastructure as a Service; Flock Based trust management*

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## **INTRODUCTION**

In the development of Smart Cities, Hybrid cloud put forward its takeoff in different business models like online business, android administrations, portable registering, and web administrations. Cloud computing technology is categorized into administration model and Service model. The administration model involves a distributed computing Infrastructure as a Service (IaaS). Platform as a Service (PaaS) is a center service model of distributed computing that arranges certain consistent or programming similarity for applications on cloud. It enables business to set their own altered application with unique PaaS programming segments; likewise, it can be said as middleware that are very adaptable and profoundly accessible. Utilizing SaaS is overseeing and updating sensible issues with negligible time and cost. SaaS highlights couple of qualities like concentrated administration, facilitating remotely (server facilitating), customers need not to stress over equipment and programming. The contribution of control input provisions feedback between multiple agents by periodic indexing and increases the security reputation of cloud computing.

## **THE SIGNIFICANCE OF THE STUDY**

Due to deployment overhead and outsourcing, consumers find a serious challenge of security implication over their information for deployment on Cloud service Provider's end and infrastructure provider's end. To model trust in cloud computing by utilizing process of authentication and to ensure user behavior and Cloud service Providers (CSP's) behavior, proper decision making factors to be adapted to progress with better trust degree. As part of smart City infrastructures and in line with the technological development and advances in digital technology, the main objective of this proposed research study is to select appropriate Cloud Infrastructure Providers (CIPs) by subjecting their internal and external opinions respectively. Also in achieving Algorithmic Aspects of Security Auditing among Multi-Agents to Acquire Trust Access Control in Hybrid Cloud with respect to SLA, monitoring Cloud Service Provider is rating by applying subjective logic we propose a decision making factor for cloud computing environment.

## REVIEW OF LITERATURE

In the recent year's attention towards service oriented computing stands at a higher priority to satisfy business needs and customer deliverables. Likewise, the phenomenal growth of Cloud computing plays a significant role in establishing end to end business needs by providing better remote services. Cloud computing is a distributed architecture that serves the different stakeholders to satisfy private and business needs. In current computing era cloud, computing has stepped its footprints in various business commodities like e-commerce, android services, mobile computing, and internet of things, social networking, multimedia applications and web services. The characteristics signify how a cloud-computing environment to be exhibited [3]. Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms [4]. SLA is a legal documentation between two parties of cloud i.e. Cloud service providers (CSP's) and Cloud Consumers that prescribe a guarantee level of Quality of Service (QoS) on certain parameters. These sorts of contracts are enabled through SLA among business and cloud service providers; the cost management is a much-required parameter that anticipates level of approval from customers [5]. The SLA transaction is performed promptly after the runtime of administration revelation inquiries [6]. A cloud user can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service provider. Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service.

## PROPOSED SYSTEM

Decision-making is an important criteria and a primary focus to devise a trust factor in a distributed environment. The cloud entity followed with its superficial layers leads with heterogeneity as a primary constraint, these constraints needs an optimal decision findings for computing trust factors with homogeneity base. The significance and introduction of flock-based procedure leads the research hypothesis with significant evaluation and devising a trust approach.

To model an optimal decision making system in cloud environment by adapting flock based rules (Boids / Reynolds rules) that allows different Cloud Infrastructure Providers (CIPs) to assess their trust for cloud services and selection of appropriate cloud infrastructure by multiple targets and CIP by subjecting their internal and external opinions respectively, also achieving their reputation with respect to SLA monitoring, Cloud service Provider's rating by applying subjective logic.

## **SYSTEM DESIGN**

This study proposes a decision making factor for cloud computing environment with the effectiveness of applying biological group behavioral mechanism named as flocking, this technique is mainly an influence of swarm technique of birds and fishes that try to achieve common objective in an effective and optimal way. The procedure of flocking overcomes the challenges of decision-making and group management to acquire trust. To achieve these challenges, firstly a new proposal of flocking rules been updated and introduced in cloud computing. In this research work, flocking procedures attain multiple scenarios. The flock centric decision supports in building trust factors for all user trust threshold. A swarm based aggregated feedback method for mobile cloud environment that effectively considers the converged and separation results, later updates the control input with homogeneity ranks. The effective hybrid selection process for cluster interaction in mobile cloud environment is depicted by attaining following properties: Management of multiple objectives, Computational complexity, Node presentation, Optimization. Based on these properties we illustrate fitness and credibility measures between CSP and CIP. Finally concludes with homogenous resource utilization after delivering the services to user end by hosting SaaS resource.

In a distributed environment like cloud computing, the Flock Based trust management (FBTM) structure consists of Center of Authentication and Authorization (CAA), CSP nodes, database of user and service nodes.

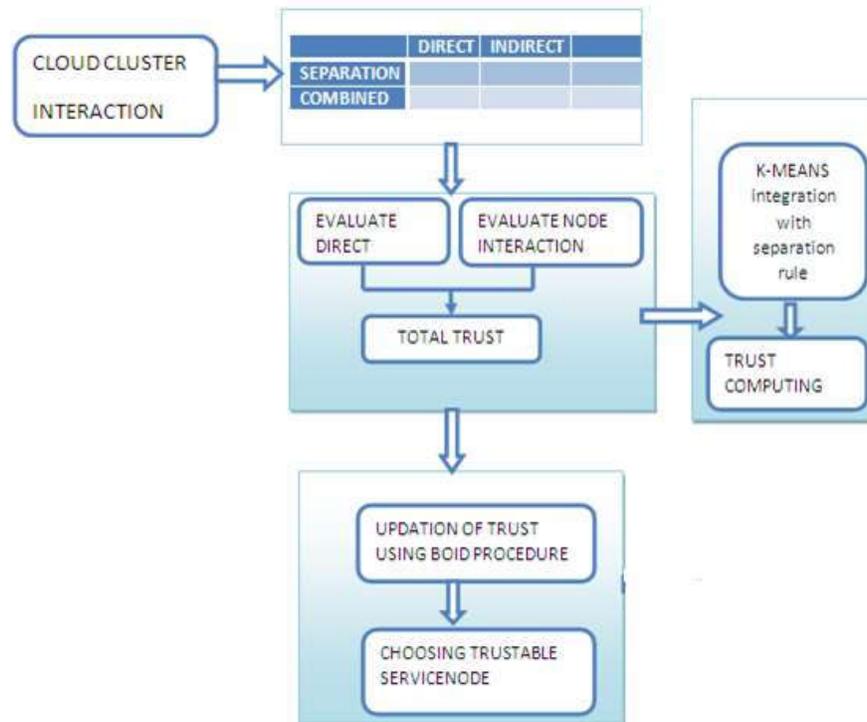


Figure-1: FBTM steps involved for trust computation

## RESULTS

The results are evaluated based on the decision process with cumulative factors for all user requests. The evaluation is simulated using CloudSim on Netbeans IDE upon Citrix Xen center. The cluster consists of main node that declare a flock center treating it has target, the mobile node is intended externally and to access the cloud services. Recommended services are initiated by cloud service to host SaaS service in a minimal time-shared with maximum similar nodes interaction with target. The trust accuracy is resulted with respect to rate of rejections for all direct and indirect interaction. The regular feedbacks of each server are considered weight considerations. The number of interactions is 500. The iteration process is cumulative for over ten 10 times at flock center ( $m(k)$ ). Consider two criteria rejection and workload value and updating the cluster value as positive evidence.

## CONCLUSION

The scope in multiple target identification scaled up with FBTM in identifying multiple targets with in a cluster and outside the cluster (locally and globally respectively). The nodes feedback is considered at the flock center in order to attain multiples target nodes reach ability by implanting a control input feedback. The control input feedback helped in instance creation of different infrastructures subjected to federated cloud entity. The trust evaluation is modeled by a health care illusion and the model supports in integrating with mobile cloud computing discussed with respect to security reputation.

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