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TRUST BASED MOBILE CLOUDLET COORDINATOR SELECTION METHOD FOR HETEROGENEOUS MOBILE CLOUD

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Abstract:

In cloud environment trust becomes one of the challenging tasks. Actually it remains problem forever for accessing the data from the cloud in a secure and efficient way. For Efficient transfer of information from one data centre to another one there should be secure channel which encompasses the shortest path with low liability that's correct information is encoded and decoded correctly at the receiver end. Cloud provides the best effort services seamlessly now it can be used in the healthcare applications. The nodes are vulnerable and there lies the possibility of the various attacks among themselves such as Sybil attack, sinkhole attack, DOS attack etc. In this paper we are proposing trust scheme by feasible path feedback algorithm between two nodes, initially, then trust between these two nodes in propagated in the whole network by achieving belief between them.

Keywords: Cloud model, trust, belief, feedback algorithm, attack.

Introduction:

Cloud computing provides a platform to access the data frequently but it varies according to the use one of the major concern is cloud security .i.e. Maintaining cloud security between the data centers now consider the data centers are frequently communicates with each other for the computation suppose we have less gained network that is collection of different data centers scattered over geographical areas. To build the trust in the less gained network it is like building belief rate in Small Ocean from the large ocean. Refelecting trust and maintaining all are like true node for certain limit of operation is one of the preliminary objective of this paper. Building trust between the nodes is one of the major tasks in the cloud environment. it can possible of nodes will suffers from many attacks like Sybil attack, sinkhole attack, DOS attack etc. preliminary condition is to establish the trust between the 2 nodes later that 2 nodes are exponentially transits

their trust over the full network. While building and exploring trust finding best feasible path is one of the major task which can form basis to maintain the belief till the certain limit of operation.

Related Work: Guyoan Lin [1] according to author they developed MTBac model the trust can be created between the mutual trust between the adjacent relative nodes and that trust reflected in the cloud environment. WeaAn Tan[2] proposed the plan algorithm in that plan algorithm different time, cost, trust preventives can be taken into account. Here workflow plans are described to take preventive action to manage the trust scheme in the cloud environment. Chenguang he[3] according to author in this by building novel efficient cloud by keeping more things online making available that product by providing robust features. Suhaisuhai tan [4] according author to resist data plane attacks they adopted the fuzzy logic ratios and from the ratios they tried to remove the temporary defects which can be occurred. Basically there were several attacks which can occur in dynamic environment to adopt and they show the simulation to detect some attacks.

Nabilarabroui [5] according to author they defined one trust management plan from the plan they tried to detect the particular behavior of the node and also they tried to find the specific route they implemented this all schemes through simulation and tried to remove the temporary defects in the dynamic environment. Junping du[6] has proposed trust management different plans in cloud environment and that environment plan is based on the different service level instruction actually cloud security is one the big problem among that focusing trust using rough set and ordered average weighting approach.

FenyeBao [7] proposed the cluster based approach for the trust models they defined different quality of service metric in a less adopted dynamic network. They defined certain primitive to detect actual fault in a dynamic environment.Surinder Singh [8] Power Efficacy and the utilization of the various resources in a static and dynamic environment varies according to whether the nodes are malicious or trustworthy. So, belief among the nodes play an important role in WSN. Guangjie Han [9] the trust model which is used in earthly environment is not feasible underwater. Underwater sensors are mostly used to monitor the environment. So, building trust among the nodes also play an important role for genuine monitoring related information which is being sought.

Maintaing the cloud nodes and scheduling the request is discussed by author [10] and various simulators[11] are available to simulate the mobile cloudlet environment.

Proposed System:

The proposed Algorithm contains 4 phases:

1) Finding all pairs best paths

2) Finding average waiting time at each node

3) Combining results of phase1 and Phase2

4)Selection of (tc) coordinator based on total cost calculated by using total costs value converted into probability

1. Finding all pair multiple feasible paths:

In this step the multiple possible paths between any source and any destination are found out. The total costs of each path are added and then average cost is calculated. Among the Paths, those which have total cost required for traversal lesser than the average cost found are considered as feasible paths.

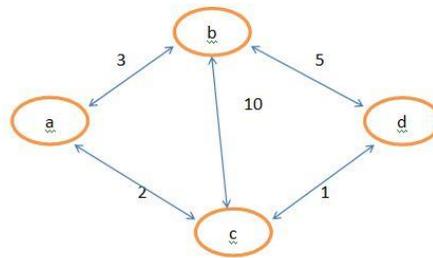Let G={a, b, c, d} be a graph which indicates the under lying network.

Fig 1: A Mobile Cloudlet represented in a simple Graph.

Let a be the source and b be the destination .All possible paths are

Node1	Node2	Node3	Node 4	Cost
A	B	D	-	8
A	C	B	D	17
A	C	D	-	3
A	B	C	D	14

Arrange the paths according to the ascending order of cost.

Phase 2: Calculating Average waiting time in each node

Each packet spends a considerable amount of time in node before getting forwarded. Especially in case of Exhaustive attacks the number of packets sent to a particular node will be very high hence waiting time at the node will also be very high. This phase helps to calculate node with less waiting times.

Let arrival be Poisson and service time be distributed and we consider the node as single sever with m/m/1 model. We know that in m/m/1 model, Waiting time $Ws = 1/(\mu - \lambda)$

This waiting time of each node is broadcasted to each and every other node for time to time.

Phase 3: Combining results of phase1 and phase2

When packet reaches each node, using cost of the paths available and total waiting time that may occur for that particular path, Decision of the further path to be taken is made.

Total cost=total cost of traversing the chosen path + Waiting time at each node of the selected path.

Path corresponding to the least total cost is taken.

Phase 4: Now selection of (tc) coordinator based on total cost calculated by using total costs value converted into probability

a) Suppose while calculation of distance from a to d its shortest path cost is 3 waiting time = 0.75;

Total cost=3.75

Now probability= total cost/number of nodes *10;

So tc=0.09375

Therefore, the total cost with minimum value is considered as a nearest path to transmit the packet

b) Suppose if the total cost and waiting time of 2 nodes are same then the solution may differs upon their quick responses while setuping the node by Microcontroller

c) Now coordinator will reflect all these trust or exchange the trust between 2 nodes

Later it improves trust by exponentially in this network

Results:

First of all it will calculate the shortest path from source node,then later while sending it gets an ascending order feedback table to send the data from one end to other end

Vertex	Distance from Source
0	0
1	4
2	12
3	19
4	21
5	11
6	9
7	8
8	14

Conclusion: By using the feedback based mathematical model, accuracy among the nodes in a dynamic environment has been achieved. Trust is an important criterion that has been made possible with the feedback based algorithm.

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