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Efficient Traffic Redundancy approach over public cloud servers using Cache Data

C Phanendra Varma[#] P Srinivas[*] D D D Suri Babu[**]

[#] Student , M.Tech (CSE) , DNRCET
**Assistant. Professor, Dept. of CSE , DNRCET*
***Associate Professor, Dept. of CSE , DNRCET*

Abstract : mComputational task of network in cloud is always a big task to the experts. Traffic redundancy elimination is one of the issues in cloud, here we work with public clouds. In this paper we propose a novel approach to deal with TRE (traffic redundancy elimination) over public cloud to reduce the bandwidth usage. In this approach we generate a simple tokens for data chunks and store it in a local cache's of TPA servers or intermediate node for every individual stream over public clouds. Here the token was generated based on data streams of users. If we identify the same stream based chunks to the target server we can send the buffered chunk from intermediate nodes to the users without increasing the traffic to cloud servers. In this paper, we focus only on the TRE based protocols, the security levels of each data chunks can be followed from any well-defined algorithms[4].The predictor data chunks are adopted from [1] so that we can efficiently reduce the bandwidth and provide more audience

Keywords : chunk , public cloud , stream , TRE, nodes

1. INTRODUCTION

Cloud resources are tremendous need for people over internet. Now a days it provides all types of resources like services, platform, network, storage and etc., to the users for better usage of the web. The best cloud ever seen us is google which provides user friendly environment for storage and application services. Slowly the commercial markets are migrating to cloud servers. Amazon[6] is best e selling cloud website. It has about 350 million users over world. So most of the popular business websites are migrating to cloud. Traffic redundancy is also grows enormously day by day because many of the uses might see the same website for similar items from the cloud. Those information is not restricted to single user in public clouds. So we can apply a simple techniques to share the information to requested users with reducing the bandwidth. Simple window protocols are used to reduce flow of traffic between client and servers. As we knew, that we use cloud systems we can retrieve information from intermediate nodes without sending to cloud servers. Every new stream chunks are stored in cache memory of local and intermediate systems because few times we may generate same chunk of data.

2. Problem Statement

In this model ,we have 3 participants

i) Public cloud server

ii) TPA or intermediate Nodes

iii) Users

Public cloud server :

cloud servers are intended to store information and generate responses to the user

requests. Here we concentrate on public cloud storages. It will be benefited to the e commerce sites

TPA or Intermediate Nodes :

Trusted Third party servers or routers, which stores small piece of information in cache memories. When a user requests has been accepted it will check the data chunk with the signature tokens present in cache. If it matches it sends the related response otherwise generate new request to the cloud server and updates its cache

User:

users are cloud consumers which needs information for given request. They can send information to third parties or to the cloud servers depends on network traffic at the moment

3. Architecture

In public cloud domain we focus only on traffic control policies. Consider the architecture users may get information from cloud servers through TPA‘s or directly from cloud environment. For every request we generate it will create a small signature and store it in chunk. if we get the same type of chunk from other users it will give acknowledge with buffered response. Every chunk is having some session time. Whenever the time expires it fetches the data from server. So users may always get updated info without increasing the traffic. This approach benefited, because dirty bit of cache memory was always cleared periodically.

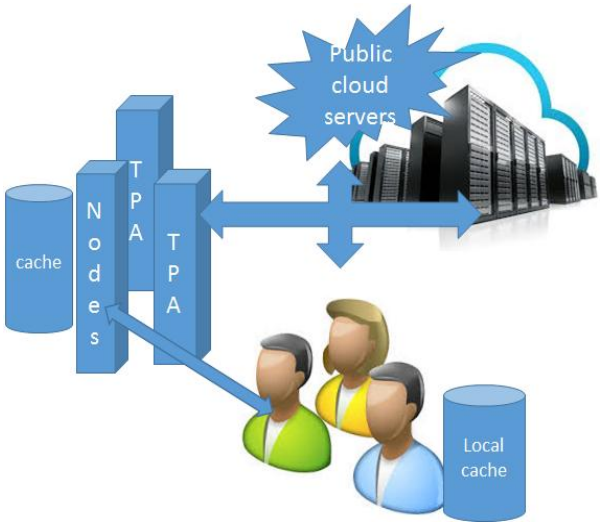

FIG. :PUBLIC CLOUD WITH TRE FILTERED

working :

when users transmit data chunks ,it will generate a token for each chunk and store it in intermediate nodes . If another user needs the same data from the server , it verifies with the existing token in cache and send the information. Here data traffic from intermediate nodes to cloud server is efficiently reduced. Mobile users can also get the information effectively because of cache data .

Signature token Algorithm

Let the data chunk is of size K bits the following happens

i)Append 2 bit information as zero’s and send it to third party there it will generate the signature

ii) once the data chunk is sent to the cloud server

the resultant chunk will store in cache by assigning the 2 bit info as the link to the resultant chunk

iv)If user sends the same data chunk with signature it will directly send information from third party

In this approach the associative arrays are used as array of pointer links to the resultant data chunks .the signature or generated using simple SHA 1 or MD5 algorithm

4. Adversary model

In this model, data is sent by storing a signature. Third party site information like banking are always sent in proper channel. User doesn't know about the algorithms. Middle ware will take of things about requests. Secure information can't be exposed to risks so we perform the predictor model for sending secure information over public channels. We are not provide any secure algorithms for data because of public cloud servers. We can use any efficient algorithm to encrypt the data chunks. We will give a secure channel approach in future with smooth transmissions in reduced cost.

5. Data chunk detection

Data chunks are nothing but a small stream of information. We will add 2 bits of information to link the requesting token with the resultant data stream. Here streams are identified sequentially or arbitrarily. We provide this model for reducing the traffic over cloud storages. In [1]refers to identify the predicted data streams in data traffic but the generation of data chunk with signatures are taking extra cost compared to the present scenario. Our approach performs well in unsecured environment like surfing items in selling sites like olx.com or quickr.com . In future model we will present an upgraded approach in private cloud servers for redundant traffic.

7. Related work in future

Seed loading technology is used to reduce the bandwidth usage and increase the audience. We will focus using some middleware to seed every user information and its account monitoring so that we can give best interesting aspects to the user depends on his previous history searches. This approach in incurred in e-commerce sites to grow business enormously.

6. Conclusion

In this paper, we propose an efficient technique to reduce the traffic over public cloud servers. It is an independent protocol approach. Servers simply maintains the signature tokens as cache entries. It runs with simple algorithm to generate a data chunk signature and verifies with cache entry. The main intention of using public cloud is to increase the e-commerce business over internet by efficiently using bandwidth. Even it using only few entries in intermediate nodes we can extend the system by getting information from local cache of user to user information share like torrents seeding. The sites cookie place is only store to persisting data chunk signatures

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