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An Adaptive Downloading Service for Effective Business Management

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Abstract- Video content downloading using the P2P approach is scalable, but does not always give good performance. Recently, subscription-based premium services have emerged, referred to as *cloud downloading*. In this service, the cloud storage and server caches user interested content, and updates the cache based on user downloading requests. If a requested video is not in the cache, the request is held in a waiting state until the cache is updated. We call this design *server mode*. An alternative design is to let the cloud server serve all downloading requests as soon as they arrive, behaving as a helper peer. We call this design *helper mode*. Our model and analysis show that both these designs are useful for certain operating regimes. The helper mode is good at handling high request rate, while the server mode is good at scaling with video population size. We design an adaptive algorithm (AMS) to select the service mode Automatically. Intuitively, AMS switches service mode from server mode to helper mode when too many peers request for blocked movies, and vice versa. The ability of AMS to achieve good performance in different operating regimes is validated by simulation

Keywords—resilient sensor networks, trust evaluation, security, secure Aggregation.

1. INTRODUTION

One of the demanding investigation problem is video content distribution as there is high necessity of Bandwidth and the high-speed increasing video inhabitants in modern years analysis, it is come to know that the need for video is more in internet traffic. CDN and peer-to-peer (P2P) are the two mechanisms to distribute video content. CDN is a conventional answer that depends on deploying servers at the network boundary, close to the video entrance location. Content Delivery Network has a constraint of Scalability as the server capacity causes a tailback when at the same time the peers asks for video content.

1.1.1 Assumption

In order to make the problem tractable, some of the simplifying assumptions for the model are done.
1. The number of videos is not changed, they remain constant. The Research field of video population and recognition is the challenging task for future work.
2. The population of Peer is much more in number than the population of video.
3. Every videos are of not in different size. The cloud storage can only preserve a very less number of the videos. The different lengths of videos from practical systems are used for simulations.
4. Same uploading capacity is there for peers. In every networks the downloading capacity of peers is more as compared to their uploading capacity. The download capacity constraint in this study is not considered.
5. At any time each and every peer can issue request for downloading. A model in which multiple parallel request can be sent may be possible in future. By forming mesh topology peers are connected to each other. The videos that are cached are substituted with a new video instantly by cloud server. Hence we can say that the video replacement time is ignored.
6. As the size of video is large so small chunks of countless in number are formed by dividing. Based on these considerations, the flowing

2. PROBLEM DEFINITION

2.1 Existing System

The traditional solution is CDN that depends on providing at the network edges towards the access points of videos. Content Delivery Network has a constraint of Scalability as the server capacity causes a traffic jam when there are huge number peer requesting concurrently.

2.1.1 Limitations of Existing System

1. Sharing of content involving videos is not easy problem in research field as it needs huge bandwidth requisite and the high speed video residents growth. Earlier in modern year analysis, it is found that video content is more in Internet traffic.
2. The environment of file sharing, where the fixed server is not provided or used for capacity of service. The peers who request for the disliked video content have a problem of modest downloading velocity.

3. ROUTE TO SOLUTION

3.1 Planned System

The cloud servers have two generic service modes. The cloud server is mainly focused with allocation of the cached content that is already available at the system of cloud storage in the first mode, requests for the video content not in the cache are made not available till such data becomes cached. The updating of its cache is done from time to time by cloud storage system in order to swap the content with requests by without requests that are in pending state. This is called as SERVER MODE. The substitute mode called as the HELPER MODE, in which no requests are blocked by the cloud server.
The uncached videos are presented by it, they simply move or sends the fixed size data from one peers to other peers by cloud server is done, hence behaving as the helper node. This part of the research is to logically compare the modes.
The expected results are interesting, that is to say that these two modes can be effective for some working conditions -when cache size is small compared to video population the server mode is helpful, and when peer demands more
Video content, even if server bandwidth is low, the helper mode is helpful. We make use of these two modes by integrating them into its own managing services of cloud downloading.

3.2 Benefits of Planned System

1. More number of peers can supply or give their upload capability through changing their way of operation from ideal(pending) to running is one of the benefit.
2. Secondly the population of video content is large, compared to the size of cache is handled by the server mode in most capable way for dealing it.

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4. LITERATURE SURVEY

Literature study plays a most important role in development process of software. The time factor economy and company strength is necessary to determine before developing the tool. Once these resources are fulfilled, then further steps are to decide which operating system is needed and which language can be used for the tool development. For this the programmers needs lot of external support when they start building the tool that is necessary. For this they need to consult senior programmers to obtain the knowledge, or they can make use of various programming books or from websites. For starting the process or the structure the above criteria are taken into consideration for building the planned system. This work has got motivation by studying the research papers, for the first time the paper [1] has shown the design and architecture of a system of running condition of cloud downloading The real world system could be able to measure the newly obtained better average time of downloading, where the cloud server runs or works in server mode only with the refreshed storage of cloud using Least Frequently Used supervision plan of Cache. In the later paper I have got the idea of policy which is using a logical model and this strategy was compared with another that is called as Helper Mode. Numerous number of papers are available, that give the knowledge of file sharing system in peer-to-peer network as in [11], [12] the file downloading system with static peers-to-peers is shown. In this paper the star topology network and straddling tree is used in the direction of obtaining high throughput. The paper [18] proved that using distributed algorithm the maximum output is obtained when the files converted into number of chunks by dividing it. The study of paper [14] has shown that the chunks formed can be sent and forwarded for peer-to-peer file system using an algorithm. This algorithm focuses on helper whose work is to increase file transfer, instead of downloading the file, but this is not purely distributed nature of algorithm.

The study of paper [10] has given a model that is dynamic in nature called as dynamic fluid model for peer-to-peer network which provides file downloading in same network. In the unusual representation, the consideration for the helpers was not there.

The study of paper [13] has given the knowledge that it has provided extension to the representation of paper [10] to different network and analyzed the good and average downloading time in peer-to-peer file distribution system.

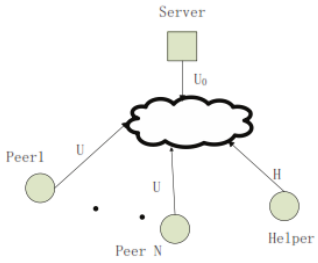
Hence in the real world system the files cannot be splitted into infinite number of chunks .The paper [15],[16] has given non continuous model for sharing of files. The files are splitted in finite number of chunks and the peers are classified into different class by checking how many number of chunks are held .The time of downloading can be obtained by studying the average state.

The protocols and architecture design of mobile system has many papers Example [7]-[9], but due to disadvantages they are not brought into practical implementations. But the thinking is that the cloud downloading system provides a more feasible solution in this paper. For Example the literature study [7] has given architecture for structured mobile peer-to-peer system. The paper [8] gives a mobile network architecture in a reliable and scalable manner, which has cellular AdHoc Networks,3G Networks etc.

5. IMPLEMENTATION MODULES

5.1 Module Description

5.1.1 Static Model



In this the investigation is started with stationary model. Here in this the peer numbers are denoted by N, hence the downloading desires; the number of requests doesn't change at N, which is called as static. Hence with the mesh topology, and constrained assumptions of uplink, the clients, the server and the cloud server will form the consistent star topology. The representation of important information is reliable. In this consideration the helpers has to add the study with their addition. Helper peers are not concerned with any movie and amplification of the system scalability to make user understanding is done. During this effort, the cloud server is a helper by means of storage space of caches of some movies to improve service capability. Hence cloud server's acts as helpers. Two of the important strategies for serving each request to download.

Helper Mode: In this mode the server of cloud with no caching the video inside its cloud storage space begins to help the downloading request. The downloaded video data from peer-to-peer system is then retransferred to the peers without this data by cloud server. The unwanted packets are not accepted

Server Mode: The video requested by peer is cached; the downloading requests are not served by the cloud storage. Those video requests that are not cached are blocked. The Updating of cloud storage is done from time to time in order to serve requests that are blocked.

5.1.2 The Dynamic Model

In this phase, the focus is on to a system that has multi-video. The requests of downloading peer arrive as a Poisson process. The peers leave the system as soon as the downloading is complete without any delay. In order to say in simple words, here U is ignored, as it is stable and is comparatively insignificant as matched to the capacity of cloud tune-up. For exchanging video content between peers a scattered chunk scheduling strategy is considered. Here the study of the unlimited-cache case is done for benchmarking, in addition to this the cases of helper approach and server approach. The assumption is done that all video storage in cloud storage.

5.1.3 Helper Model

It is logical to consider the system that is only a small part of all the videos are stored inside the cloud server. In this helper mode, whether the video is cached or not the cloud server serves all downloading requests. If the video is not available in cache, the cloud server will transmit and magnify the video content downloaded from new peers. The cloud server has no attention in producing the same video. The bandwidth of cloud server (allocated to video j) will be shattered as it is implied by eq. 2. Hence it is not easy to make use of the bandwidth of cloud server as efficiently as the logical upper bound in theorem 1, with distributed P2P scheduling with the assumption of helper mode. Although some paper believe that complete helper bandwidth consumption can be achieved by means of scattered Peer-to-peer scheduling policy, but the central coordination is needed. Here first we investigate the typical downloading time

for the best case of helper mode. After that, secondly we evaluate the standard downloading time based on scattered scheduling policy.

4.1.4 Server Model

In server mode, any request that is not cached for a video is not made available until the updating of cloud storage is done. Hence it is essential to distinguish peers from downloading peers and the waiting peers. The earlier are peers of downloading a video cached in the cloud storage space, whereas the latter are peers coming up for the cloud storage space to be re-energized. The possibility that the asked video is cached by the cloud storage space is hit rate, denoted by gamma) ألا). A new video is updated into the cloud storage space by clearing a video that are arrived without requests. The population of these coming up peers and downloading peers is denoted by NW and N correspondingly.

5. ALGORITHM USED

4.2 Adaptive Algorithm

We can see from the over study shows that, there are equally advantages with disadvantages of both the helper approach as well as server approach The helper approach wastes Peer-to-peer source as the cloud server wishes to spend time in downloading latest data content in order to help peers; Hence the bandwidth resource of blocked peers is wasted by server mode. Here, the Proposal for an algorithm which is adaptive in nature is done to decide the examiner mode for every movie. Here periodically the server cloud gets adjusted by running the AMS algorithm to conclude the approach for every movie. The identified value of N is made as assumption. The high priority is given to the movies in helper approach in order to include in storage. Then, in order to decrease peer population the consideration for the other movies is done.

Algorithm 1 Automatic Mode Selection (AMS) Algorithm

```
for Each movie j not in K. do
  if The active movie is less than K then
    Update cloud storage to add movie j by replacing any movie without request.
    N' = N' + N_j
  else
    if (N' + α_j N_j) / (N + α_j N_j) < N_j U then
      Use helper mode for movie j.
      N' = N' + α_j N_j
    else
      Keep blocking peers requesting for movie j
    end if
  end if
end for
```

Based on our analysis, the weakness of helper mode is the additional bandwidth cost to download the requested video by cloud server. The benefit is that more peers can contribute their upload capacity by switching their state from waiting to downloading. Thus Algo. compare the cost and the benefit and start helper mode once the benefit is larger than cost.
AMS algorithm is friendly for implementation. In practice, N' can be calculated by counting the average number of requests served by the cloud server. The value of $\_j$ can be estimated by the ratio N' *J Nj* , where N' *j* is the average number of peers viewing video *j* can be helped by cloud server and *Nj* is the peer population to view video *j*. In the next section, we will use simulation to validate the effectiveness of AMS algorithm.

6. CONCLUSION

In this work the efforts are made to construct a theoretical model to study various techniques or mechanisms of downloading a cloud system. In this specially two designs are studied, one is helper mode and other is server mode which forms the constructs of these designs. Here the usage peer is done for server or cloud.
This study shows that both of the modes have advantages in different working scenarios. Here the Bandwidth is wasted by helper mode, but it is able to provide the facility of peer-to-peer when the load of requests is elevated. In order to deal with large video server mode is helpful. The design of algorithm i.e., AMS to select the service or handle the situation at diverse scenario is good. In order to optimize the cloud downloading system this design is efficient as per this study .The focus is given for the potential benefits to use the obtain results for different mobile cases.

6.1 Scope for Future Work

As there are numerous numbers of papers are available for peer-to-peer mobile system on the protocol and also structural plan. But practically it is impossible to split the files into various chunks of packets. The stable condition has to consider in order to derive the average time of downloading. But the operation of these protocols for many years has not been done due to various problem involved in it.
The belief is that a most efficient and feasible solution is possible for cloud downloading system as illustrated in this work. In this the new design throws a light on both the scalability and consistency issues of the system. It is possible to provide realistic planning for movable P2P system by using the protocols.

REFERENCES

[1] Y. Huang, Z. Li, G. Liu, and Y. Dai, “Cloud download: Using cloud utilities to achieve high-quality content distribution for unpopular videos,” in *ACM Multimedia*, 2011.
[2] A. web site, http://www.akamai.com.
[3] PPLive, http://www.pptv.com/.
[4] PPStream, http://www.ppstream.com/.
[5] Thunder, http://dl.xunlei.com/xl7.html.
[6] QQ, “http://xf.qq.com/.”
[7] H.-C. Hsiao and C.-T. King, “Bristle: a mobile structured peer-to-peer architecture,” in *Proc. of Parallel and Distributed Processing Symposium*, 2003.
[8] J. Cheng, Y. Li, L. Jiao, and J. Ma, “A new mobile peer-to-peerarchitecture,” in *Proc. of the 5th WSEAS InternationalConference on Applied Computer Science*,, 2006.
[9] F.-U. Andersen, H. d Meer, I. Dedinski, C. Kappler, A.Mader,J.Oberender, and K. Tutschku, “An architecture concept for mobile p2p file sharing services,” in *In Workshop at Informatik 2004 - Algorithms and Protocols for Efficient Peer-to-Peer Applications*, 2004.
[10] D. Qiu and R. Srikant, “Modeling and performance analysis of bit torrent like peer to peer networks,” in *Proc. of ACM Sigcomm*, 2004.
[11] J. Mundinger, R. Weber, and G. Weiss, “Optimal scheduling of peertopeer file dissemination,” in *Preprint version in arXiv*,2006.
[12] D. Chiu, R. Yeung, J. Huang, and B. Fan, “Can network coding help in p2p networks,” in *Invited paper in Second Workshop of Network Coding*, 2006.
[13] B. Fan, J. C. Lui, and D. M. Chiu, “The delicate tradeoffs in bittorrent-like file sharing protocol design,” in *Proc. of ICNP*,2006.
[14] J. Li, P. A. Chou, and C. Zhang, “Mutualcast: an efficient mechanism for content distribution in a p2p network,” in *Proc.Acm Sigcomm Asia Workshop*, 2005.
[15] M. Lin, B. Fan, J. C. Lui, and D.-M. Chiu, “Stochastic analysis of file swarming systems,” in *Performance Evaluation vol.64(9-12):856-875*, 2007.

[16] L. Massoulie and M. Vojnovic, "Coupon replication systems," in *Proc. Of ACM Sigmetrics*, 2005.
[17] N. Venkatasubramanian and S. Ramanathan, "Load management in distributed video servers," in *Proc. of IEEE ICDCS*,1997.
[18] L. Massoulie, A. Twigg, C. Gkantsidis, and P. Rodriguez, "Randomized decentralized broadcasting algorithms," in *Proc.of IEEE Infocom*, 2007.