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Co-operative Content Downloading Over Cellular Networks

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Abstract: The aggravated advancement over wireless communication has reasonably expected to utilize smartphones, laptops, and tabs massively for downloading design. But due to constrained data transfer capacity, the information download volume about a distinctive user is limited and time consuming for a high resolution video. The co-operative content downloading schema will permit the requested joiners in the network to download a segment of the file independently. This will support the capacity to download the file cost effectively and with a reduced time consumption factor. The recommended framework will additionally hint at the genuine procedure how the transfer speed (bandwidth) could be imparted around the joiners and one requestor. The whole framework will give the productive utilization of bandwidth in distinctive environments.

Keywords: Segmentation, Cluster formation, Adhoc network, Sequencing.

I. INTRODUCTION

There are numerous applications which give acceptable single client downloading plan but there is no procurement to co-operative downloading i.e. different members downloading the same file, given that every member will download a separate assembly segment from the claiming file. Torrent, YouTube are widely used to download a file for an absolute end client, i.e. single individual download. Through co-operative downloading schema this constraint will be avoided. Nowadays, there are unlimited 2G/3G plans made available by the Internet Service Providers, but practically most of the data plan are wasted because of data transfer capacity (bandwidth) impediments. These problems will additionally be fathomed by our content downloading framework. This suggested framework could be utilized within VANET, LAN or alternately versatile mobile adhoc network for any sort of downloading. Productive changes in the Drive-thru web will be a greater amount troublesome assignment and influence the downloading as compared to the indoor and stably situated wireless local area network (WLAN) scenarios. Proceeding to entering the cellular network coverage, a cluster of tagged members will be formed. A few of many ordinary grouping methodologies have been investigated and the fundamental thought around how to discover those accomplices may be comparative.

We concentrate on how to structure a chain topology with a scope to make it stay stable. An aggregation of clients that exploit short-range remote joins willing to offer the expenses of a cellular division download is what remote or wireless co-operative network architecture summed up of. To boost the effectiveness of the communication system, streamlining of parameters, for example, time effective downloading, cost effective downloading and crucially, effective utilization of energy can be executed. Emulating these methodology different portions of data should be doled out for downloading to the included clients, which will then helpfully transfer the data on the short-range communication ends. However, this approach of claiming

assignment duty of the client terminals have a regulated impact on the result of the absolute users, raising equitability issues over genuine execution situations and concentrating on the efficiency of the energy presented by the wireless co-operative networks, while one end client can't take out best of accessible transfer speed and data pack provided by the ISP(internet service provider).

The task of cooperative content downloading framework is done in the following stages.

1. Requesting the members.
2. File segmentation and sequencing.
3. Task Allocation.
4. Data collection through adhoc network

II. RELATED WORK

In this area we survey research in the cooperative content downloading framework .The vast survey examination have the state cooperative video streaming method, which encourages viewing a video co-operatively [2]. Our proposed framework will clarify the division (segmentation) and sequencing strategy for the desired approach. A large portion of the work of downloading is finished by considering single client however we will take multiple other clients to finish the assignment.[3]. Because the transmission capacity (bandwidth) of the 3G/3.5G system over vehicular network in a moving state lacks stability and efficiency, the quality of the requested video stream may not be efficient. Utilizing a 4G network might not even be sufficient for the following concerns [4]. Primarily, different applications may use the 4G network at the same time. Secondly, the moving conduct of one vehicle e.g. moving with fast or around the scope limit of one base station makes the deterioration of 4G data bandwidth. So as to enhance the video quality while traveling, one vehicle would ask other vehicles within a similar fleet to download the video utilizing their repetitive 3G/3.5G bandwidth.

III. SYSTEM MODEL

The whole framework work is described and arranged stage wise, as appeared in figure 1 every task is performed one after another.

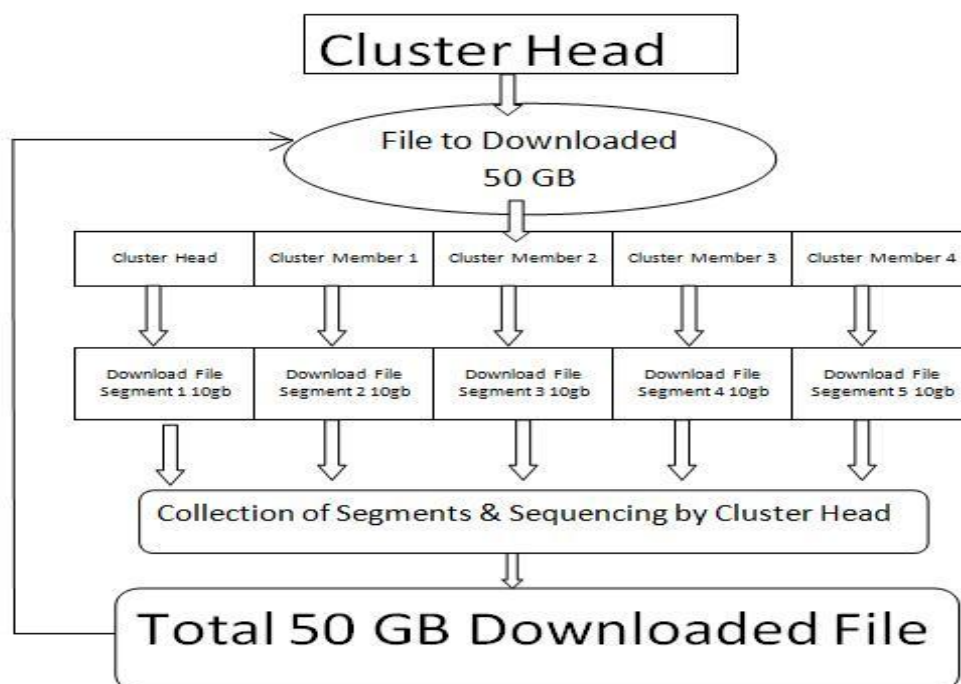


Fig. 1 System Architecture

Requesting the Member

In this stage, the cluster head who needs to download the file say of video format or mp3 or pdf. A request from the cluster head is sent to the members in surrounding area and if the members decide to support the cluster head they accept the request and acknowledge it. The greedy approach algorithm is utilized for finding the members. This particularly chooses those members which are nearer to cluster head and has great bandwidth. After getting the acknowledgement from the group members the cluster head will choose how many segments of the file should be made.

Segmentation and Sequencing

For downloading any file it is segmented into number of segments and each segment is renamed according to the sequence of the video stream .On receiving the acknowledgement from the members, the group head will do the division or segmentation of the file and distribute the task in the form of links for downloading. Each cluster member will download the distributed segment with his own accessible bandwidth. The given file as appeared in figure 2 first is segmented to five segments and the sequencing is done in numerical arrangement like 1/5, 2/5, 3/5, 4/5 and 5/5.

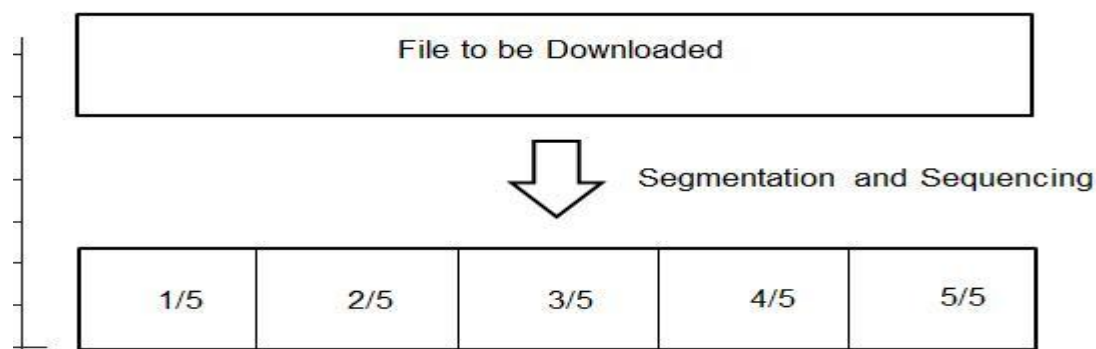


Fig. 2 Segmentation and Sequencing

Task Allocation

After segmenting the file based on the available number of members, each segment is then renamed sequentially and allocated to the group members, one segment per member, for the task of downloading. Each member is responsible for the downloading of the allocated segment of the file.

Data Collection through Adhoc Network

Once the task of downloading is done, every member will forward the downloaded data to the group head through the adhoc network without utilizing the cell network. Group member will then collect all the segments of the file from the group members and merge them after arranging all the segments sequentially. This file will then be ready to be utilize or in the case of a video, it will be ready to be watched.

IV. CONCLUSION

This paper provides an insight on the approach to cluster based co-operative video downloading over the hybrid network systems, which consists of 3G/3.5G cell system and adhoc system. The proposed co-operative video downloading has concentrated on the issues persisting in the application layer. The procedure can be utilized by numerous video facilitating site and end client which are broadly utilizing the cellular bandwidth for downloading purposes. The framework had removed the bandwidth issues for downloading substantially large file considering all the different deterrents. Similarly this approach can be utilized for the current LAN network arrangement by considering the server as a group head and all the rest of the desktops as

group members. In the future this co-operative content downloading framework can be utilized to overcome the network layer issues as well.

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