Video-on-Demand Delivery by synchronizing users using Multicast Gain

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ABSTRACT

Video accounts for over half of all traffic to mobile, internet-connected devices, and this fraction is increasing. As such, improvements in mobile video delivery will probably lead to significant social group savings. Multicasting is a well-known technique for reducing the load on a network when that load is evoked by multiple users (or clients) accessing identical content. Multicasting provides clear benefits when streaming video of fashionable live events such as concerts or sports matches. Yet some video content is viewed "on demand"—when a user joins, she wishes to watch the video from the start. Existing approaches for this problem assume that the server is either fully aware of the state of the users or is totally oblivious to their states, the former being most helpful for tiny numbers of users and also the latter being most useful for big networks. A dynamic-programming-based computer hardware that will operate in each of those regimes.

KEY WORDS: Video-on Demand, Wireless Video Delivery, Pyramid Broadcasting, Multirate Multicast, Downlink Schedule.

1. INTRODUCTION

The existing schemes in the literature can be roughly divided into two groups: those with "oblivious" servers that receive no feedback from the clients, and those with "omniscient" servers that are assumed to know the state of all clients at all times. In oblivious schemes the server divides the video into segments and transmits the segments in a particular periodic order, as in Pyramid broadcasting and its later improvements and extension. In omniscient schemes, on the other hand, the server can use feedback from the clients to decide what to transmit. Serving video via separate unicast is a simple example of an omniscient scheme. Yet unicasting can be inefficient even in on-demand scenarios. If two co-located wireless users choose to watch the same video at slightly different times, for instance, then data sent to the "leading" user can potentially be overheard and cached by the "lagging" user, reducing the amount of overall traffic. For such a scenario to occur, one would obviously need a high density of users with common interests. This could occur at sporting events, in which spectators watch replays or highlights of other games on their smart phones; at train stations, airports, and bus depots, in which waiting passengers watch the latest episode of a popular television show; in train or airplane cabins, in which passengers are allowed to stream a small set of on-demand videos to handheld tablets; and in museums, in which patrons may stream short videos about particular works of art to their smart phones. The idea is to transmit only one copy of the content through links that utilized by multiple users. Compared with using separate unicasts, this results in less load on the network. If the final link within the network is a wireless channel shared by multiple users who are acquiring content from a common source, then the broadcast nature of the wireless channel can be exploited to achieve an extreme form of multicast: the network can send the same amount of traffic over every link as in the case of a single client.

Architecture:

Video Spilt: The video data is split into packet for the secure tcp transmission i.e., after getting the acknowledgement of first packet, server send the second packet to the receiver. It minimizes the delay in transmitting a video packet following the block-signing process and playback of the video following the block-verification process.

Distributed Routing and Channel Allocation: In this section, we propose a heuristic distributed protocol to find a joint routing and spectrum allocation for a single session request that minimizes the full information measure price within the network whereas satisfying the constraints. The basic is as follows, such as Path Discovery, Path Selection, we use two rounds to find two paths together with spectrum allocation. In every spherical, the receiver broadcasts the trail discovery message to its neighbors.

Video Retrieval: The packet is received by the client one after another .After receiving all the data, client provides adaptive block verification and get the video content.

Video Stream: The receiver broadcasts the path discovery message to its neighbors. Each intermediate node updates its presently best path and spectrum allocation to the receiver, and further broadcasts the update information. After all the verification the receiver allows the data for display the video.

The Working of a Architecture Model: The client request the sender for the video which the client wishes the video to watch. The sender sends the request to the client to get the IP Address for verfication. The sender verifies whether the client is the authenticated user or not. If the sender finds that the client is unauthenticated, then the request is denied.

The Videos are splited into packets through the router. Using the approximation dynamic based scheduler the videos are splitted into packets.

Using the ofdma techniques the splitted packets are combined in the another router. If all the process is completed the client can watch the video.

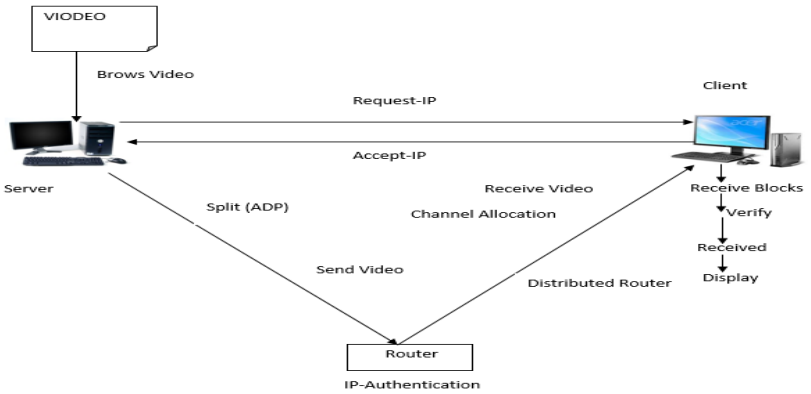

Figure.1. System architecture

2. METHODS

Algorithm: Dynamic Programming requires an optimality property allowing to build solution to the problem from precomputed partial solution.

Step 1: The sender choose either to send the data unit (Action a0=1) or Not to send data unit (a0=0).

Step 2: If the sender sends the data unit then at the second transmission oppurtunity the sender observe either that the unit has beeen acknowledged by a feddback packet (O0=1) or the data unit has not acknowledged (O0=0).

Step 3: In the first case,the process reaches a final state and in the second case, the sender choose again to send the data unit or not.

Step 4: This process repeats until either the data unit has acknowledged or there are no transmission oppurtunity.

Step 5: In the transmission scnenario of transmission with feedback, the feedback channel was used to inform the sender about the successful reception of data unit.

Step 6: Another way of using feedback channel is to inform the sender about which data unit to be sent.

Step 7: The receiver sends request packet , each containing the number of data unit to the sender.

Step 8: The sender then responds by sending the corresponded data unit.

3. RESULT

The overall process is to transfer video to client in secure manner. the secure manner mean avoid the packet loss, avoid traffic to make video without buffer. once the connection is established there occurs no interruption on the process.

4. CONCLUSION

The concurrent demand of a popular video by multiple users occurs in several practical scenarios. If the video is delivered to users over a wireless channel, then the broadcast nature of the channel can be exploited to achieve multicast gains. The challenge, however, is to realize these gains for on-demand video. We have proposed a dynamic-programming-based scheduler that can provide multicast gains for wireless video-on-demand. The scheduler bridges the divide between existing oblivious schedulers, that do not receive any feedback from the clients, and omnisicient schedulers, that rely on perfect knowledge of the state of each client at each time. The scheduler has been validated on a Wi-Fi test-bed and been shown to be highly extensible.

REFERENCES

Bellman R, A Markovian decision process, Journal of Mathematics and Mechanics, 6 (5), 1957, 679-684.

Chan A, Zeng K, Mohapatra P, Lee S, and Banerjee S, Metrics for evaluating video streaming quality in lossy IEEE 802.11 wireless networks, in Proc. IEEE Infocom, 2010, 1613-1621.

Fishman G.S, Monte Carlo: Concepts, Algorithms, and Applications. New York: Springer, 1996.

Kumar P.R and Varaiya P, Stochastic Systems: Estimation, Identification, and Adaptive control. Prentice-Hall Information and System Sciences Series, Englewood Cliffs, NJ: Prentice Hall, 1986.

Lin T.L, Kanumuri S, Zhi Y, Poole D, Cosman P.C, and Reibman A.R, A versatile model for packet loss visibility and its application to packet prioritization, IEEE Trans. Image Proc., 19 (3), 2010, 772-735.

Reibman A.R and Poole D, Predicting packet-loss visibility using scene characteristics, in Proc. IEEE Packet Video, 2007, 308-317.

Viswanathan S and Imielinski T, Metropolitan area video-on-demand service using Pyramid broadcasting, Multimedia Systems, 4, 1996, 197-208.