ABSTRACT

Cost effective, smooth multimedia streaming to the remote customer through the distributed “video on demand” architecture is the most challenging research issue over the decade. The hierarchical system design is used for distributed network to satisfy more requesting users. The distributed hierarchical network system contains all the local and remote storage multimedia servers. The hierarchical network system is used to provide continuous availability of the data stream to the requesting customer. In this work, we propose a novel data stream that handles the methodology for reducing the connection failure and smooth multimedia stream delivery to the remote customer. The proposed session based single-user bandwidth requirement model presents the bandwidth requirement for any interactive session like pause, move slowly, rewind, skip some of the frame, and move fast with some constant number of frames. The proposed session based optimum storage finding algorithm reduces the search hop count towards the remote storage-data server.

Keyword: User defined protocol(UDP), Data center network(DCN), Quality of Service(QoS), Internet Protocol(IP), Real Time Transport Protocol(RTP).

1. INTRODUCTION

An interactive video on demand (VOD) system requires smooth data streaming for the user irrespective of geographic location to access on demand video, such as movies, electronic encyclopedia, interactive games, and educational resources from the distributed storage servers through a high-speed network. The number of customer’s requests increases exponentially in the local cluster domain. It brings a heavy load to the network system. The consequence is a high rate of customer request drop and huge bandwidth wastage.[1]

With a variety of access technologies available, the demand for mobile multimedia applications has increased enormously. Supporting these multimedia applications with varied quality of service (QoS) requirements while maximizing the resource utilization is a challenging task.[2] One important factor is the transport protocol that significantly affects the offered QoS and efficient utilization of network resources in the inherently varying transmission conditions due to the wireless medium. Currently most of the multimedia applications use UDP as the main transport layer protocol. However, UDP performance has not been satisfactory in meeting the varied QoS of diverse multimedia applications. A number of new protocols are being developed to meet the diverse needs of emerging multimedia applications. SCTP and DCCP are two important developments that are being considered in this regard. In this paper, through simulations, performance of UDP, SCTP and DCCP protocols has been analyzed for the transport of MPEG-4 video traffic over WiMAX as underlying access technology. Considering single cell WiMAX network, performance metrics such as throughput, delay and jitter have been determined for each of the three protocols in varying WiMAX network topologies/scenarios. On the basis of this study, it has been found that both SCTP and DCCP outperform UDP by large extent. Further, DCCP performance is better than SCTP in terms of delay and jitter.[3]

Optical multicasting based on passive star couplers and fast tunable transceivers is an attractive solution for the throughput and latency requirements of many data center applications. The limited tuning range of transceivers, however, may not be sufficient enough to enable the flexible scheduling of traffic. In this paper, we propose a suite of scalable scheduling algorithms for optical multicast switches with wavelength tunability constraints, considering both tunable and nontunable transmitters. To support scalability and scheduling fairness, we adopt a round-robin arbitration policy in conjunction with appropriate provisions to minimize the number of packet retransmissions. We conduct Monte Carlo simulations to compare the proposed algorithms. For 64 ports, 16 channels, and bursty multicast traffic, a scheduling that exploits transmitter tunability with minimal fan-out splitting can improve the maximum
throughput by up to 60% compared to a fixed transmitter scenario.[4]

2. Cloud Computing

The specific computing about the assistance of devotions before memory, including transmitting capability basically on the cloud. Companies rent the access from applications which helps owning their computing foundation from rack assistance. Same services are provided by supplier which helps significantly the economy. Pay per use services is essential these days as companies increase the use of cloud computing which can decrease the basic cost of maintaining their initial cost maintaining IT infrastructure. Cloud computing basic option for a lot of services like third party vendors are shifting their applications to cloud than any other service.[5]

Cloud computing manages all data by collecting information and resources. The process to integrate old and new data for analysis of cloud produces accurate information and service for users. The clients do not have to worry about buying the software. As per the needs one can buy resources through their wanted needs.[6]

It is a traditional network developed to converge with data service platform. Three resources are most important in cloud-computing are measuring strength, area season and system path. Provides adjustable, great feature system. Most common settings are shared area, shared information transferring, exploration transformers, including multimedia settings, depend on massive computation information kernel interface system. Many servers are required to serve the users. Data Center Networks multicast works this way.[7]

2.1 Traffic Analysis in DCN

Throughput requirements make the data centre traffic with firm latency. Having less latency is challenging for user experience. In the back end strict deadlines are put to respond to a search quer in real time. Assignments which are unable to complete before their time periods cancelled, which effects the output. Quality if result and revenue is dependent on the kind of service provided. Traffic that require high throughput latency crucial traffic shares the network with massive work data.

2.2 Video Streaming Data Center

Continuous video is available to play smooth video. It provides a continuous delivery case in a computer and the server. The Data centre is made in such a way that it gives content storage economically digital rights management, and streaming delivery to n no. of subscribers. With increase in different multimedia apps the technology has enabled interactive experiences. Examples of real time response are like for eg Interactive online multiplayer gaming, cloud gaming etc. These all demand live response to get real immersive effect and requires QoE. Rather than this in actual incident acknowledgement, a great quantity concerning utilization get exhausted through certain apps including which incurs more charges with more bandwith and energy issues. Mostly the data is stored locally at the user’s local storage due to which multimedia sharing has become more popular. With increase in use capacities including various concepts and visualization this has become hard to explore them of said place and conditions. Edge technologies give some easy way for the repository, method, also explore for viewing for a particular time and place.[8]

This technology means envisioned while the Internet concerning all, which enables automation like mobile_edge and micro_data_centres offer a feasible explanation to any difficulties suffered through mechanisms and factor running. It also provides technologies like enveloping and various aspect running, including gambling with giving pace entirely authentic incident acknowledgement and user influence. This will decrease the value also stream concerning information within the World Wide Web centres. It offers a nice solution which mostly is faced today by internet services.[9]

3. Network Architecture

In the traditional data center model, the traffic is mainly generated between the server and the client, with a low proportion of east–west traffic among the data centers [10]. With the extensive use of the Internet and the integration of the mobile network, Internet of Vehicle [11], cloud computing, big data, and other new generations of network technology and development have come into being to deal with massive-scale data and large-scale distributed data centers, bringing about the accelerated growth of east–west traffic exchanged among servers, for example, the Google File System.

**Figure 1: Basic Block of Cloud Computing**
Traffic scheduling and congestion control are important technologies to maintain network capacity and improve network efficiency. Traditional networks have some congenital defects. The main disadvantages can be summarized as follows: First, there is no global coordinative optimization. Each node independently implements the traffic control strategy, which can only achieve the local optimum. Moreover, there is no dynamic and self-adaptive adjustment. The predefined strategies in routers cannot meet the frequently changing demands of business flows. In addition, traditional networks find it difficult to achieve the effective and accurate control of every network device. The configurations of network devices are numerous and diverse where the commands are so complicated that it is very difficult to find the network errors caused by configurations. Consequently, it is of great urgency to figure out how to effectively manage and dominate network traffic, which has pushed network architects to take advantage of SDN to address these problems in data centers.

4. CONCLUSION
In this survey we focused on the problem of traffic scheduling and congestion control across data centers and aimed to provide an approach that could greatly improve link utilization. To realize this goal, we designed DSCSD, a dynamic traffic scheduling and congestion control scheme across data centers based on SDN. The moment a flow arrives, it relies on the connection of traffic parameters and link information to select paths. Furthermore, it can achieve real-time dynamic scheduling to avoid congestion caused by the burst of instantaneous traffic, and can also balance the link loads. Compared with traditional approaches, the experiment and analysis had an obvious effect on the classification and diversion of flows, thereby improving the link utilization across data centers. Better than the SDN-based scheme with threshold value, the real-time monitoring and dynamic scheduling of the shortest paths were fully reflected. Meanwhile, we innovatively adopted the mechanism of a multilevel feedback queue for congestion control, which is suitable for different types of flows and can implement anomaly detection by preventing malicious flow from chronically occupying the bandwidth.

5. REFERENCES