Dynamic Xml Dataset Based On Multi-Channel Bus Architecture for Multimedia Cloud

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Abstract-A number of client server internet video streaming for live streaming has been an emerging technique in recent years. The behaviour of these popular systems has been extensively studied in several measurement projects. Due to the proprietary nature of these commercial systems, however, these studies have to rely on a "black-box" approach, where packet traces are collected from a single or a limited number of measurement points, to infer various properties of traffic on the control and data planes. Although such studies are useful to compare different systems from the end-user's perspective, it is difficult to intuitively understand the observed properties without fully reverse-engineering the underlying systems. This project describes the network architecture of "dynamic xml dataset based on multi-channel bus architecture for multimedia cloud", one of the largest production live streaming providers and presents a large scale measurement using data collected by the provider. Alternatively, efficient techniques based on randomizing visual feature and search indexes have been proposed recently to enable similarity comparison between encrypted images.

Keywords*:* Communication Bus, Distributed Mobile Multimedia, Cloud Computing

I. INTRODUCTION

In cloud computing platform the communication bus plays a crucial role in delivering multimedia services to the clients in the distributed computing. The multimedia applications differ from traditional applications in various ways. They generate large amounts of data and often involve groups of users requiring point-to-multipoint and multipoint-to-multipoint connections. They also require high quality performance. Many multimedia services can be provided in the distributed computing environments. Service-specific transmission should be provided. For example, according as a media type to be transferred is whether video type or audio type, it is so reasonable to use different transport mechanism or different Quality of Service (QoS). The Distributed Multimedia System is aiming to improve future networks and middleware for advanced multimedia applications.

Multimedia does not only mean audio and video, but also sensor data of any kind. The system investigates context-aware and self-adapting solutions for transmission, distribution and management of multimedia data. Pervasive networking and modern Internet: Wifi, WiMax, Bluetooth, the third-generation of mobile phone networks. The result is that networking has become a pervasive resource and devices can be connected at any time and in any place. Mobile and ubiquitous computing: small and portable computing devices are integrated into the distributed system such as laptop, handheld devices (PDA, cell phone, camera etc). Distributed multimedia systems: it support a range of media types such as audio, video in a distributed system. So desktop can access live television, file libraries, music libraries, telephone IP phone (Skype) in distributed system. Most video-on-demand systems are examples of delay-sensitive progressive-download application. The third case, real-time live streaming has the most stringent delay requirement. While progressive download may tolerate initial buffering of tens of seconds or even minutes, live streaming generally cannot tolerate more than a few seconds of buffering. Taking into account the delay introduced by signal ingest and encoding, and network transmission and propagation, the live streaming system can introduce only a few seconds of buffering time end-to-end and still be considered "live" .

Multimedia systems play a central part in many human activities. Due to the significant advances in the VLSI technology, there is an increasing demand for portable multimedia appliances capable of handling advanced algorithms required in all forms of communication. Over the years, a steady move from standalone multimedia to deeply distributed multimedia systems. Whereas desktop-based systems are mainly optimized based on the performance constraints, power consumption is the key design constraint for multimedia devices that draw their energy from batteries. The overall goal of successful design is then to find the best mapping of the target multimedia application onto the architectural resources, while satisfying an imposed set of design constraints (e.g. minimum power dissipation, maximum performance) and specified QoS metrics (e.g. end-to-end latency, jitter, loss rate) which directly impact the media quality. This system addresses a few fundamental issues that make the design process particularly challenging and offers a holistic perspective towards a coherent design methodology.

Other design concerns are generated by the large number of multimedia systems that need to provide services relying on the energy provided by a battery of limited weight and size, the limitation on computational capability of multimedia systems because of heat dissipation issues, and the dependability of multimedia systems operating at high temperatures because of excessive power dissipation. Last but not least, the designing and manufacturing costs are increasingly important since many of the multimedia devices have to be affordable in order to fulfill their prospective area of deployment as an example, think of a sensor network where hundreds or even thousands of computation nodes are needed; plus, the entire sensor network may have a limited live span of only a few days. The design time also needs to be kept very low in order to keep pace with market trends.

II. RELATED WORK

Basic issues in multimedia systems design: Massoud Pedram Department of EE-Systems University of Southern California

Multimedia systems represent a very special class complex computing systems. As such, their design process should start by taking into consideration their unique characteristics which are dominated by the huge amount of data that needs to be processed and transmitted in a continuous manner, and the timing constraints that need to be satisfied in order to have an informational message meaningful to the end-user. Another important characteristic is the Quality of Service (QoS) which embraces all the non-functional properties of a system (e.g. power consumption, latency, jitter, cost, etc.). In multimedia systems, QoS requirements vary considerably from one media type to another. For example, due to the large amount of data that needs to be processed, the video streams require consistently high throughput, but can tolerate reasonable levels of jitter and packet errors. In contrast, the audio applications manipulate a much smaller volume of data (therefore do not require such a high bandwidth), but place tighter constraints on jitter and error rates.

Modeling issues: Joerg Henkel C&C Research Labs NEC USA

As in most practical cases, the design of multimedia systems starts with the modeling step of the multimedia *application*. In its most abstract form, a multimedia application can be reduced to a set of different media streams (audio, video, etc. coming from the same or different sources of information) that satisfy a particular temporal relationship. For instance, in order to enforce lip-synchronization, the audio and video streams need to be synchronized at precise time instances. With respect to this temporal relationship, multimedia applications are characterized by 'soft' rather than hard real-time constraints and then they may tolerate a small percentage of missed deadlines. In other words, the behavior of multimedia applications is not necessarily characterized by a single hard real-time constraint, as is the case for safety critical applications, but by a probability which captures some variability in the performance metrics. To model the application of interest, system need to think about representing streams of information. A natural choice is to use process graphs where each node corresponds to a *process* in the multimedia application, while each edge represents a communication *channel* (link) which allows data to be exchanged (usually asynchronously) between different communicating processes. This communication process happens through dedicated buffers that behave like finite-length queues.

The Design of the Borealis Stream Processing Engine: Daniel J. Abadi, MIT Cambridge

Borealis is a second-generation distributed stream processing engine that is being developed at Brandeis University, Brown University, and MIT. Borealis inherits core stream processing functionality from Aurora and distribution functionality from Medusa. Borealis modifies and extends both systems in non-trivial and critical ways to provide advanced capabilities that are commonly required by newly-emerging stream processing applications. In this project, system outline the basic design and functionality of Borealis. Through sample real-world applications, system motivate the need for dynamically revising query results and modifying query specifications. System then describe how Borealis addresses these challenges through an innovative set of features, including revision records, time travel, and control lines. Finally, system present a highly flexible and scalable QoS-based optimization model that operates across server and sensor networks and a new fault-tolerance model with flexible consistency-availability trade-offs.

A survey and comparison of peer – to – peer overlay network schemes: Eng Keong Lua, Jon Crowcrof

Over an internet today, Computing and communications environments are significantly more complex and chaotic than classical distributed system and lacking any centralized organisation or hierarchical control. There has been much interest in emerging Peer-to-Peer (P2P) network overlays because they provide a good substrate. These P2P overlay networks attempt to provide a long list of features.P2P networks potentially offer an efficient routing architecture that is self- organizing, massively scalable, and robust in the wide-area, combining fault tolerance, load balancing. They present a survey and comparison of various structured and unstructured P2P overlay network. The technical meaning of structured is the overlay network topology is tightly controlled and content is placed not at random peers but specified location that will make subsequent queries more efficient. An unstructured P2P system is composed of peers joining the network with some loose rules, without any prior knowledge of the topology. The network uses flooding as the mechanism to send queries across the overlay with a limited scope. When a peer receives the flood query, it sends a list of all content matching the query to the originating peer. Thus, unstructured P2P networks face one basic problem: peers readily become overloaded, and thus the system does not scale when handling a high rate of aggregate queries and sudden increases in system size.P2P overlay networks is best suited depends on the application and its required functionalities and performance metrics, e.g. scalability, network routing performance, location service, file sharing, content distribution, and so on. Several of these schemes are being applied to the sharing of music, replication of electronic address books, multi-player games, provisioning of mobile, location, or adhoc services, and the distribution of workloads of mirrored Web sites.

Multimedia security in cloud computing environment: Sonal Guleria, Dr. Sonia Vatta,Research Scholar, Guide School of Computer Science & Engineering, Bahra University

Cloud computing multimedia database is based on the current of database development, object-oriented technology and object-oriented fields in the database, which increasing display its vitality. Cloud computing provides a computer user access to Information Technology (IT) services which contains applications, servers, data storage, without requiring an understanding of the technology. An analogy to an electricity computing grid is to be useful for cloud computing. To enabling convenient and on-demand network access to a shared pool of configurable computing resources are used for as a model of cloud computing. Cloud computing can be expressed as a combination of Software-as-a-Service which refers to a service delivery model to enabling used for business services of software interface and can be combined creating new business services delivered via flexible networks and Platform as a Service in which Cloud systems offering an additional abstraction level which supplying a virtualized infrastructure that can provide the software platform where systems should be run on and Infrastructure as a Service which Providers manage a large set of computing resources which is used for storing and processing capacity. Through Virtualization, they are able to split, assign and dynamically re-size these resources to build ad-hoc systems as demanded by customers.

Enhancing dynamic cloud-based services using network virtualization: Fang Hao, T.V. Lakshman, Sarit Mukherjee, Haoyu Song Bell Labs, Alcatel-Lucent

Services and applications will migrate to a cloud-computing paradigm where thin-clients on user devices access, over the network, applications hosted in data enters by application service providers. For example, “thin client” applications such as allow users to run a VM in the network cloud, and access the VM from various devices at different locations. A flexible service delivery system would allow these VMs to migrate to different locations in the cloud depending on user locations so as to permit faster access and more efficient data delivery to users. For good performance and efficiency, it is critical that these services are delivered from locations that are the best for the current set of users. Services will be hosted on virtual machines in interconnected data centre and that these virtual machines will migrate dynamically to locations best suited for the current user population. A basic network infrastructure need then is the ability to migrate virtual machines across multiple networks without losing service continuity. Enabling wide-area VM mobility in an efficient manner can be of significant value to many cloud-computing applications. Since VMs used for cloud-computing applications will be hosted in data centre, the focus of this system has been on VM migration within and between data centre. Several open issues remain for future research particularly the use of this architecture in enabling new applications and in simplifying implementation of current features.

Media cloud - a new paradigm of multimedia computing: Snehal .Warhekar,.V.T.Gaikwad Sipna COET

Multimedia computing has attracted considerable attention with the rapid growth in the development and application of multimedia technology. It has attempted to support the increasing resource consumption and computational overhead caused by multimedia computing. Media Cloud, a new multimedia computing paradigm that integrates the concept of cloud computing in handling multimedia applications and services effectively and efficiently. Media Cloud faces the following key challenges: heterogeneity, scalability, and multimedia Quality of Service (QoS) provisioning. Challenges are: a layered architecture of Media Cloud, which can provide scalable multimedia services, is presented. Then, Media Cloud technologies by which users can access multimedia services from different terminals anytime and anywhere with QoS provisioning are introduced. Finally, Media Cloud implementation and applications are presented, and media retrieval and delivery are adopted as case studies to demonstrate the feasibility of the proposed Media Cloud design. Multimedia computing is a technology that can generate, edit, process, and search for media content, such as images, videos, audios, and graphics, among others. Multimedia computing technology has the potential to enable a large number of applications, ranging from multimedia e-mail and video players to sophisticated real-time conferencing and virtual/augmented reality. Media Cloud is to process complex services with efficient resource allocation, scalability, and QoS provisioning. A layered view of Media Cloud, which is logically, divided into three layers, namely, the Media Service Layer (MSL), the Media Overlay Layer (MOL), and the Resource Management Layer (RML).

III. PROPOSED DESIGN

Application and transmission bindings that hierarchically cooperate together and with **DBMA** the advanced **64-bit streaming** of multimedia data files are transmitted by using the multi-channel bus transmission process. It will be decoded in the client place, by providing the search options to the client to select the better resources from the cloud data server using the cloud service provider. The feedback from the clients is taken into account for the dynamic service providing options during the next transactions. Service-specific transmission should be provided. The media type to be transferred is whether video types or audio type, this mechanism will provide the Quality of Service (QoS).The client server connection should be able to dynamically change itself as network environment changes. For example, as the computing user moves, it could suffer from fluctuations in throughput and delay because the level of connectivity varies. To cope with such requirements, efficient adaptations should take place at a variety of levels by this proposed technique. Delay over the data channel fault tolerance is enhanced over by the video encoding scheme for enhancing data buffer size regardless of the rate of transmission with data loss.

A. CLIENT REQUEST METRIC

It’s smarter to rent than to buy such kind of service is provided by cloud computing. It is a model that is used for delivering resources that can be either Software or Hardware. Its means getting resources through network and more over that charges based only on the amount of computing resources used. Cloud service such as infrastructure as a service is caught for a security issue because by nature it is dynamic and multi tenancy. The common threats to the data in cloud are access to the data by any unauthorized user or cloud provider himself may not be trustworthy. Traditional cryptography techniques are adopted by the client to achieve the user’s control over the entire data. Security aspects such as integrity, confidentiality and authentication are considered to have secure data storage. Through advanced encryption scheme and hashing for user’s data to preserve it from the security breach in data storage where it is stored in a large data centre.

B. XML METASPACE VERIFICATION

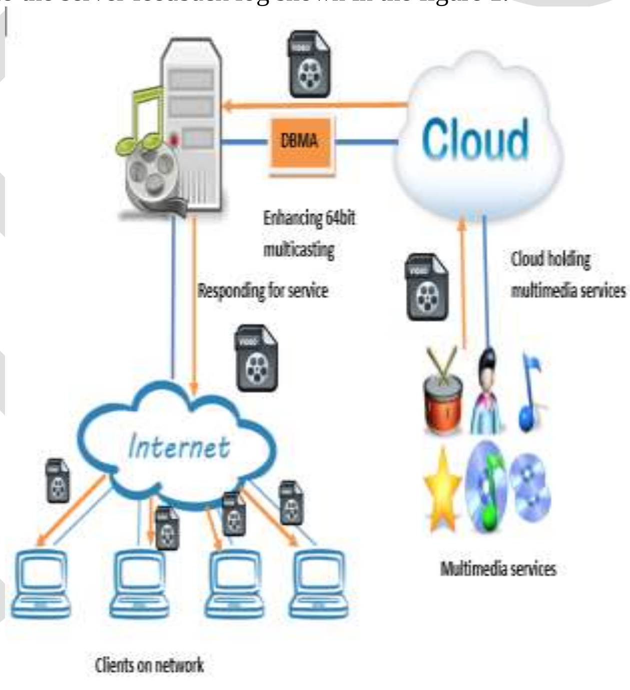
This module is designed to load the file and then it converting it into an xml file. Why xml format? The purpose is to stream the file in a web browser. The xml format file can be easily loaded in a web browser and the xml format file can be easily played without any buffering. This module takes it role as converting the file of any format into an xml file. Playing xml frames as the video is an inventive technique. Regular metadata refresh protects users against spoofing and phishing, and is a necessary precaution in the event of key compromise. Failure to refresh metadata exposes users, and other Federation participants to unnecessary risk. It will verify that the XML Meta space exists in the correct location. If it can't find the tag, it'll give you information about the error that encountered. Once this problem is resolved, try to verify your site again. Unauthorized the tag from the page can cause your site to become unverified, and will need to go through the verification process again.

C. 64-BIT MULTICASTINGS

At server side there should be a tool to stream the multimedia services. In this case, it is **64-bit multicasting**. It is multimedia streaming management service, which have the capability to stream the multimedia services to the clients. Unlike normal streaming it has the effective method of streaming the xml contents to the clients. When the clients are authenticated and verified for xml it starts to stream the respective xml files to the respective clients. A multicast address is also used by multiple hosts, which acquire the multicast address destination by participating in the multicast distribution protocol among the network routers. A packet that is sent to a multicast address is delivered to all interfaces that have joined the corresponding multicast group. In particular, it permits hierarchical address allocation methods that facilitate route aggregation across the Internet, and thus limit the expansion of routing tables. The use of multicast addressing is expanded and simplified, and provides additional optimization for the delivery of services. Device mobility, security, and configuration aspects have been considered in the design of the protocol.

D. CLIENT FEEDBACK REPORT

This enables the admin to monitor the processing of the streaming mechanism the process monitoring shows the number of process going on. That is the total number of streaming services at present. Then it shows the amount of traffic occurring in the system. It is helpful to find out if any problem occurs in the system, which may allow the admin to solve the problem immediately. Server provides as variety of different mechanisms for logging everything that happens on your server, from the initial request, through the URL mapping process, to the final resolution of the connection, including any errors that may have occurred in the process. In addition to this, third party modules may provide logging capabilities, or inject entries into the existing log files, and applications such as Multimedia programs, access scripts, or other handlers, may send messages to the server feedback log shown in the figure 1.



IV. RESULT AND DISCUSSION

Cloud media with DBMA computing offers cost effective services to its service providers through efficient multiplexing of media contents like audio, video, image by providing a common infrastructure, utilizing the server, optimization, virtualization, Mobility and automatic processing. There is no need for physically acquiring an infrastructure or resource in our local system and thus reduces the cost. Cloud media with DBMA is an always connected to the cloud service provider and therefore it is upgraded and maintained without any manual interference. Software and security will be up to date always. Cloud media with DBMA allows the media content to be accessed anywhere through any smart device and it is compatible with all kinds of client service enabled computers, Smartphone, cars tablets etc. Cloud media with DBMA provides consistency in distributing the specific media contents to the users of other cloud within a cloud

community using the streaming protocols like TCP/IP, UDP, RTP etc.
Cloud media with DBMA computation uses optimized data canters for processing, distributing or sharing the media content to the users. But the traditional computation requires more energy consumption. Cloud media with DBMA offers the users to purchase a media content once and it can be accessed anywhere in multi-screen by providing customization ability depending upon the accessing device. Cloud media with DBMA technology has many bases for storing the media content in the cloud using the resources. Also it is more secure since the stored media content will be duplicated without manual interference.

V. CONCLUSION

Cloud computing using mobile devices has many advantages over traditional cloud computing for applications that use mobile data. DBMA provides an infrastructure for cloud computing, providing an abstract interface for using data and executing computing jobs on a mobile device cloud. CSP provides most of the essential features for a mobile-cloud computing infrastructure, making it suitable to use as a basis for DBMA. Furthermore, there are several solutions provided by DBMA that can be directly applied to challenges in a multimedia cloud computing environment, such as using fault-tolerance for tolerating node departure. This overhead cost is exacerbated by artificial limitations. Nevertheless, DBMA easily scales to all of the nodes in our network, and would likely scale to many more nodes. It also works reasonably well for local peer-to-peer data sharing and is generally successful in tolerating node-departure. Our experiences in implementing the distributed multimedia search and sharing application suggest that DBMA provides a convenient, sufficiently abstract interface for developing applications that use mobile data.

As, future enhancement, though it is analyzed the concepts about the Cloud computing for Multimedia i.e. Multimedia Cloud computing, which is used to access, store and process the media contents like audio, video, image etc. of any format and any size. Also the system has addressed some of the emerging cloud media services to choose with DBMA. Cloud media with DBMA is an area of greater innovation and more competitive so it will offer more benefits to its users in the future. Similarly there are several challenges also in the case of QOS, security, reliable network usage etc. This system will also help in the further research on security issues of multimedia contents in cloud media.

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