



DATA PROCESSING IMPLEMENTED OVER CLOUD COMPUTING

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ABSTRACT

Data is a collection of recorded facts. Data processing involves the use of algorithm for extracting specific patterns associated with data. The main purpose of data processing deals with the usage of different types of data and difficulty in handling different kinds of databases. Data stream management and information retrieval forms an important criteria for processing web applications. Database systems include data streams, natural language processing and information retrieval, medical database, green computing and cloud computing. Data mining is an important area in the science of discovering meaningful knowledge with respect to data. A new approach that involves Integrated Learning in Alignment of Data and Schema which combines data matching and logical reasoning. Sensor data becomes available in the form of continuous streams data processing is difficult. The External Memory Sliding Window Join algorithm utilizes external memory data structures to adapt to the variable data arrival rates. Cloud computing is a model that utilizes shared computing resources as a service over an Intranet or Internet to provide dynamic scalable computing or services. This paper reveals virtualisation in cloud deployment model. In cloud common applications can access from a remote location and software applications run on the cloud servers and we can sent data to the servers from user location. Users get a broad network of data access from a remote location and processing of data in a location independent fashion. User can login from a remote location, start a

session that requires search functions and data operations. Cloud computing provides on demand network access to a shared pool of configurable computing resources.

Keywords: Virtualisation, Mobile Cloud Computing, Service Level Agreements.

1. INTRODUCTION

Storing data and querying data applies to both structured and unstructured data. Queries helps in the retrieval of information from the database. Queries can be classified into look up search and exploratory searches. In look up searches user look up details on topics known to them. In exploratory searches they explore new information. A web based tool called Lookup Discover Explore that improves lookup search by adding exploration capabilities .Challenges including developing a formal query description syntax, translating queries with correct interpretation, bridging the gap between user expectations ad system capabilities, adopting query description for resource selection, ranking top k resources, merging results from resources to maximize precison provide ranking for users with respect to resources. As mobile devices become practically ubiquitous it might become possible to utilize capacities for distributed query process. Cloud Computing is a distributed computing system that helps to manipulate, configure, and accessing the software applications online. It offers online data storage, infrastructure and application .Cloud Computing enable us to store and access data and programs over the Internet. It can also be defined as a distributed computing system that offers computing resources from service providers to consumers according to the licensing agreement.

2. Aim of Data processing

Data processing involves innovative techniques and technologies to capture, distribute and manage data. Also various applications can handle different types of data as well as different types of databases. Big data may be structured or unstructured or semi structured format. Knowledge discovery system enable us to find the various patterns of data in different data formats. Hadoop is a database that is typically used for software projects that is mainly used for distributed processing of large data sets that can handle different datatypes. Query is a sentential form for extracting various types of data for handling different types of data.

Benefits of Cloud Computing

Cloud computing helps in storing data on the cloud servers and uses cache memory technology in the client to fetch data Clients can be PC's, laptops and smart phones. With virtualization technology multiple operating systems can concurrently run on a single physical system. Cloud computing is the use of scalable resources over the Internet. Cloud computing provides a cost effective IT solution to business and scientific community. It reduces the cost of purchasing expensive hardware resources such as servers, storage and networking equipments. Cloud Computing is an emerging computing paradigm where data and applications reside in the cyberspace and it allows users to access their data and information with the help of Internet. A technical foundation of cloud computing lies in the virtualization. Data centers work as a backbone in cloud computing

3. Elements of Cloud Computing:

Cloud Computing employs a wide range of heterogeneous systems. The various elements of cloud computing are

1. A scalable pool of virtual servers, storage and networking resources hosted or running in the cloud.
2. Data center that includes Hyper-V servers and storage of resources that control the infrastructure in the cloud.
3. Tools for managing datacenter servers and storage resources to users.

3. Service Models

Four service models to categories cloud services.

1. Software as a service (SaaS): It involves software licensing policy and a delivery model in which software is licensed on a subscription basis. The main aim is to design the infrastructure in such a way that it supports portability and platform independence Eg SaaS include Google Docs and Google Mail.

2. Platform as a service (PaaS): This layer is considered as a core layer in cloud computing system that allows cloud consumers to develop cloud services and applications directly on the PaaS cloud. It employs configuration settings to host various software applications. Eg for PaaS is Google App Engine

3. Infrastructure as a service (IaaS): Cloud consumers use this service for processing, storage, networks, and other fundamental computing resources provided in the IaaS cloud. Virtualisation is implemented in IaaS cloud. The basic strategy of virtualisation is to set independent virtual machines that are isolated from both the underlying hardware and other virtual machines.

4. Database as a service (DaaS): The significance of huge amount of data processing enables on demand storage service. DaaS offers table style abstractions that are designed to scale out to store and retrieve a huge amount of data within a compressed time frame and to define cloud data, applications services and infrastructure.

4. Deployment Model

Four cloud deployment models are defined in the cloud community.

Private cloud: The cloud infrastructure operated slowly in a single organization. The main aim is to optimize the utilization of existing in-house resources. It also helps to maximise and optimize the utilization of in-house resources.

Community cloud: A community cloud may be established where several organizations possess similar requirements and seek to share infrastructure in order to realize the benefits of cloud computing. It offers scalable resources.

Public cloud: The cloud infrastructure is made available to the general public or a large industry group, and is owned by an organization selling cloud services. Examples: Amazon

Elastic-Compute-Cloud, Sun Cloud, Google App Engine.

Hybrid cloud: This cloud infrastructure is a combination of two or more clouds that remain unique entities which are bound together by standardized technology that facilitates portability.

Due to explosive growth of the mobile applications and merging of cloud computing (MCC) has been introduced to be a potential technology for mobile services. The major obstacles related to MCC involves the issue of performance such as battery life storage and bandwidth.

5. Mobile Cloud Computing

Mobile cloud computing is a combination of two technologies a development grid and centralized algorithms. Mobile devices can be laptops, PDA's, smartphones connected to the base station by 3G,WIFI or GPRS. The key steps in cloud implementation planning involves defining cloud application requirements, defining high level cloud architecture, identifying change management requirements. Mobility is the major achievement in the development of mobile devices such as laptops, smartphones and PDA's. As Mobile Cloud Computing is based on a collection of three major concepts hardware, software and communication.

6. Virtualisation in deployment model

Virtualisation is the process of simulating virtual versions of infrastructure resources such as computing environment, operating systems, storage devices and network components as opposed to actual or physical versions of the same resources. This work deals with server virtualization. It is the ability to virtualise work server loads. Physical server that controls physical resources such as operating system, memory and storage can be allocated to virtual machines.

Hypervisor is the main software component of virtualization. Hypervisor is the software layer that controls access to the resources such hardware and the creation of VM's. This work discusses the isolation between virtual machines and hypervisor vulnerabilities.

Server virtualization function includes management of interfaces, memory management and scheduling of network resources and the isolation feature enables all virtual machines share the same hardware and same resources allowing malicious entities to exploit data leaks and cross VM attacks. In cloud environment several kinds of virtual machines are hosted on the same physical server as infrastructure. The aim of virtualization is to reduce equipment costs and reduce power consumption and we can increase speed of time to market by minimizing the network operator cycle of innovation.

Virtualisation lowers the cost of existing infrastructure by reducing operation and system management costs. Also it reduces the complexity of adding infrastructure. It creates innovations to bring new services and new revenue streams easily at much lower risk. The result of virtualisation aims at more cost efficient production to compensate heavy mobile traffic across the network. Co-ordinated implementation of cloud and networking applications helps to access on-demand services by providing capital efficiency for enterprise customers and network operators.

7. Service Level Agreements

Reliability is another important factor in cloud computing. Service providers must ensure with quality of service that complies with service level agreements. Reliability of service is another important factor in cloud computing. Service providers must ensure with quality of service that complies with service level agreements. SLA enhanced customer interaction level as it focuses on customer satisfaction level. SLA increases quality of service. Each item in an SLA corresponds to a key performance indicator(KPI) that specifies the customer service within an internal organisation. It increases relationship between various enterprises. SLA life cycle occur three high level phases namely creation phase, operation phase and removal phase. Cloud computing act as a new platform for delivering utility computing services.

Types of Virtualisation

1.Storage virtualisation uses network storage resources are present as a single storage device for efficient management of resources. It improves data management in heterogeneous

platforms. It provides better availability of service and better storage facility. It improves performance by utilization of resources. It improves automated management of resources.

2. Memory virtualisation: It provides a way for shared distributed environment with a network function. We can increase memory capacity that helps to store terabytes of data. That is why a portion of the disk drive serves as an extension of memory.

3. Operating System Level Integration: The operating system connects to the memory pool so as to make use of available memory to various applications. Operating system virtualization creates self contained representation of operating system to provide applications in an isolated execution environment. Hardware emulation involves the representation of system environment so that we can install multiple operating systems and we can increase the scalability of the system. Virtualization use partitioning method to support many applications and operating systems. Also isolation feature enables machine protection from crashes and viruses.

Service oriented network virtualization enables network as a service feature that allows network infrastructure utilization of network services. Network service provisioning is separated from data transfer mechanisms. Infrastructure providers manage the physical infrastructure and network service providers create virtual network for offering end to end network services by utilizing resources obtained from Imp's. Key attributes of network virtualization include abstraction details of network resources, indirect access to network resources as resource sharing. Physical network infrastructure consists of links and resourceful provisioning problem can be solved by sampling input data at different rates. Cloud environments are elastic that is they can provide resource on demand to meet the computation memory, storage requirements of various applications.

Conclusion

Virtualisation reduces storage space and forms a infrastructure for various cloud applications. It also provide dynamic environment to set up a new level of automation to minimize cost and to ensure control and compliance. Dynamic memory allocation

enhances the proper automation of resources. Also emerging networks such as 4G networks and Femto cell emerging as a powerful technology that overcomes the problem of bandwidth and power consumption. 4G network is a technology that significantly increases bandwidth capacity for subscribers. With the help of 4G networks we can send data to 100 Mbits/second and 128 Mbit/s for mobile users. VMware simplifies IT management in future. Physical network infrastructure consists of links and resourceful provisioning problem can be solved by sampling input data at different rates. Cloud environments are elastic so that it enable us to provide resource on demand to meet the computation memory and storage requirements of various applications. Big data processing key enablers include increase of storage capacities, increase of processing power and availability of data.

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