



A STATE OF THE ART OF DATABASES TO IMPROVE THE STORAGE EFFICIENCY ON CLOUD COMPUTING

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Abstract

The cloud computing is a large groups of remote servers are networked to allow the centralized data storage. It has the access of computer services, resources and can be classified as public, private and reserved. In this study, we explored various types of Data bases used in cloud computing with respect to the category of Knowledge database, XML database, Online databases and Real-Time databases to improve the storage and data efficacy.

Keywords: Cloud computing, Private Cloud, Public Cloud, Knowledge, Real-Time, Bibliographic Database, Bibliographic Database, mobile database.

1. INTRODUCTION

The database in cloud computing is categorized how it interact with various cloud sources for effectively improving the storage capacity for better performances. A data base is a organized collection of data are typically organized to model aspects of reality in a way that supports processes requiring information. For sample, modeling the availability of rooms in hotels in a way that supports finding a hotel with vacancies. And cloud computing is the computing in which large groups of remote servers are networked to allow the centralized data storing, and connected access to computer services or resources. Clouds can be categorized by manner of public, reserved.

The data base in cloud computing is a storage architecture local administrator to cloud administrator. Traditional databases are organized by fields, records, and files. A field is

a single piece of information; a record is one complete set of fields; and a file is a collection of records. To access information from a database, database management system (DBMS) is used. This is a collection of programs that supports you to enter, organize, and select data in a database.

The DB techniques are fundamental to increase data availability replication and synchronization. DB is divided into three levels such as front-end, middle-ware, and back-end that is built on Amazon Web Services front end and Mobile devices is middle ware and also extensible markup language and back end cloud platform. It provides services and also high performance database process have seen exponential development in the past, and such growth is expected to quicken in the future.

2. RELATEDWORK

A Cloud database management system (CDBMS) is a distributed database that delivers computing as a service instead of a product. It is the sharing of resources, software, and information between multiple devices over a network which is mostly the internet. Applications of database in real-time are Effective processing complex data and data with set of the references for expression of the relations between them, Building of Internet-shops and distributed information systems, Building of the virtual company office and virtual kiosks, Storage and reproduction of graphic images, video and audio, Creation of WEB-sites, allotted to unlimited opportunities. Cloud applications connect to a database that is being run on the cloud and have varying degrees

of efficiency. In this cloud computing the digital library books borrow problem is occur then they are kept application of homomorphic encryption mechanism for the library

The application of homomorphic encryption mechanism for the library of cloud computing Here they use collision data base[1]. The Design of an Adaptive Peer-to-Peer Network it reduce how it means the cloud of servers support thin clients with various types of service like Web pages and databases. Based on cloud computing peer to peer is now getting very popular

Such techniques are fundamental to increase data availability replication to synchronization have shown useful in the broad context of P2P systems and also super-peer collaborative systems Here they are using mobile data base [2].

Here the real time performs can be down that infrastructure only and Cloud-Mobile Computing Based Real-Time. Cloud-Mobile Computing Based Real-Time in this paper only we introduces a private cloud with SaaS service to realize a real-time video/voice over IP (VVoIP) [3] in this paper only we introduces a private cloud with SaaS they are having the huge capital investment. In their own IT infrastructure and also told that open environment where customers can deploy IT service providers may record service information in a service process from a customer and then collectively deduce the customer's private information

IT service providers may record service information in a service process from a customer and then collectively deduce the customer's private information[4].

Commonly here we are using with the help of computer and internet to get information based on cloud computing only we are share the resources only and also using Xml data base. And It is still in its infancy in regards to its Software as a Service (SaaS), Web Services, Utility Computing and Platform as Service (PaaS).The location-based services and the abundant usage of smart phones and GPS-enabled devices. This is necessary to go that outsourcing data has grown rapidly over the past few years .cloud storage and cloud computing services has provided a flexible and

cost-effective platform for hosting data from business and individuals in this knowledge-based development in the cloud rule engine and service oriented design in graph database has been designed to operate in a current cloud environment Cloud database are responsible for store data in high available form in cloud environment. The migration to one environment to another is difficult in that case cloud database uses to store and retrieve data

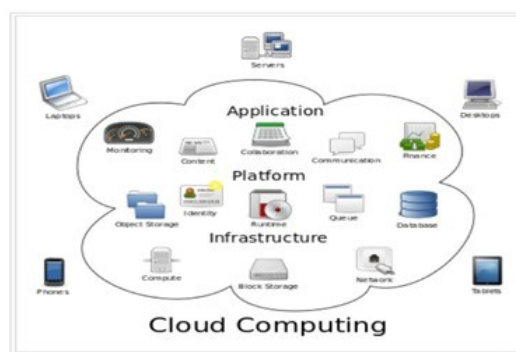


Figure 1. Cloud Computer metaphor: for user, network element

In fig1 cloud computer of metaphor user in network element is interacted with a applications, Infrastructure, and platform with different devices will be used. The privacy preserving system store data base of storage architecture local administrator to cloud administrator for this to learn about the outsourced database content and also more over the machine readable rights expressions are used in order to limit user of the database to a need-to-know basis Here they use cloud data base[5]

Cloud Storage for Real-Time Databases

Real-time Cloud Storage is a fast and fully managed backend-as-a-service (BaaS) that removes the administrative burden of operating distributed databases while providing seamless scalability. Designed for internet scale applications, Cloud Storage is particularly suited for online collaborative applications due to its powerful real-time notification features. Real time Cloud Storage is the ability of providing real-time notifications when data changes inside the storage. This means that's incredibly easy to develop applications that synch data between several users. Your application simply defines which events are of interest (e.g. table inserts, item updates, item deletes)

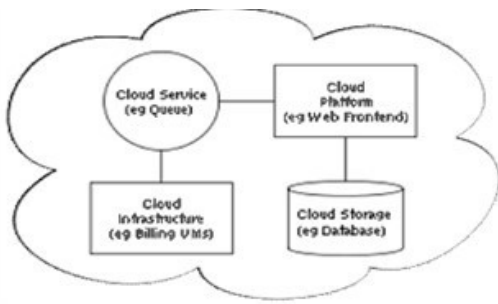


Figure 2. cloud computer sample architecture

Here the real time performs can be down that substructure only. In fig2 cloud computer example architecture A real time system can take advantage of intensive computing capabilities and scalable virtualized environment of cloud computing Here we are using Real-time data base

[6] A real-time database is a database system which uses real-time processing to handle workloads whose state is constantly changing.

This differs from traditional databases containing determined data, mostly unaffected by time. For sample, a stock market changes very rapidly and is active. The graphs of the dissimilar marketplaces appear to be very unstable and yet a database has to keep track of current values for all of the markets of the New York Stock Exchange. Real-time processing means that a transaction is processed fast enough for the result to come back and be acted on correct away. Real-time databases are beneficial for accounting, multi-media, process control, and scientific data analysis

Cloud Storage for Knowledge Databases

Knowledge-based development approach for end-user in is a database used in the cloud environment. To practice the knowledge in the cloud rule engine and service oriented design were convoluted. It offers a framework for the user to store the knowledge, facts and actions. Here we use Knowledge database[7].

A Knowledge Database is a store of information that can be searched or browsed using predefined classifications. The classifications help to both guide the researcher and understand the context of the information they have found. Knowledge databases don't just leave users with a search box and let them work out what they should be looking for, knowledge databases provide knowledge database is a technology used to store complex structured and

unstructured information used by a computer system.

The original use of the term knowledge- base was to describe one of the two sub-systems of a knowledge-based system. A knowledge-based system consists of a knowledge-base that represents facts about the world and an inference engine that can reason about those facts and use rules and other forms of logic to deduce new facts or highlight inconsistencies

- Flat data. Data was usually represented in a tabular format with strings or number in each field.

- Multiple users. A conventional database must support more than one user or system logged into the same data at the same time.

- Transactions. An essential requirement for a database was to maintain integrity and consistency among data that is accessed by concurrent users. These are the so-called ACID properties

Cloud Storage for XML Databases

Here using with the help of computer and internet to get information based on cloud computing only we are share the resources only and also using Xml data base .And It is still in its infancy in regards to its Software as a Service (SaaS), Web Services, Utility Computing and Platform as Service (PaaS) Here we use Xml database[8]. An XML database is a data persistence software system that allows data to be stored in XML format. These data can then be queried, exported and serialized into the desired format. XML databases are usually associated with document-oriented databases

- XML-enabled: these may either map XML to traditional database structures (such as a relational database[2]), accepting XML as input and rendering XML as output, or more recently support native XML types within the traditional database. This term implies that the database processes the XML itself (as opposed to relying on middle ware).

- Native XML (NXD): the internal model of such databases depends on XML and uses XML documents as the fundamental unit of storage, which are, however, not necessarily stored in the form of text files.

XML in databases: the increasingly common use of XML for data transport, which has meant that "data is extracted from databases and put into XML documents and vice-versa" .It may

prove more efficient (in terms of conversion costs) and easier to store the data in XML format. In content-based applications, the ability of the native XML database also minimizes the need for extraction or entry of metadata to support searching and navigation. In a native XML environment, the entire content store becomes metadata through query languages such as X Path and X Query, including content, attributes and relationships within the XML.

Cloud Storage for On-Line Databases In high performance database process databases have seen exponential growth in the past, and such growth is expected to accelerate in the future to increase the storage capacity comparing to old to implement like new thing Here we use the online database[9].

An online database is a database accessible from a network, including from the Internet.

It differs from a local database, held in an individual computer or its attached storage, such as a CD.

- For the system or software designed to Currently, there are several database products designed specifically as hosted databases delivered as software as a service products. These differ from typical traditional databases such as Oracle, Microsoft SQL Server, Sybase, etc. Some of the differences are:

- These online databases are delivered primarily via a web browser
- They are often purchased by a monthly subscription
- They embed common collaboration features such as sharing, email notifications, etc.

Cloud Storage for Bibliographic Database

In cloud computing research and selection system they are using the out ranking method because to get a better refine the results and also main contribution is conceiving an Agent that uses both the Skyline. Here we use Bibliographic databases[10].

The database of bibliographic records, an organized digital collection of references to published literature, including journal and newspaper articles, conference proceedings, reports, government and legal publications, patents, books, etc. In contrast to library catalogue entries, a large proportion of the bibliographic records in bibliographic databases

describe articles, conference papers, etc., rather than complete monographs, and they generally contain very rich subject descriptions in the form of keywords, subject classification terms, or abstracts.

A bibliographic database may be general in scope or cover a specific academic discipline. A significant number of bibliographic databases are still proprietary, available by licensing agreement from vendors, or directly from the indexing and abstracting services that create them. Many bibliographic databases evolve into digital libraries, providing the full-text of the indexed contents. Others converge with non-bibliographic scholarly databases to create more complete disciplinary search engine systems, such as Chemical Abstracts.

Cloud Storage for mobile database

Here Designing and developing we use the three levels front-end, middle-ware, and a back-end that is built on Amazon Web Services front end is Mobil devise and middle ware is extensible markup language and back end cloud platform provides services Here we use the Relational Database[11].

A mobile database is either a stationary database that can be connected to by a mobile computing device (e.g., smart phones and PDAs) over a mobile network, or a database which is actually stored by the mobile device. This could be a list of contacts, price information, distance travelled, or any other information.[1]

Many applications require the ability to download information from an information repository and operate on this information even when out of range or disconnected. An example of this is your contacts and calendar on the phone. In this scenario, a user would require access to update information from files in the home directories on a server or customer records from a database. This type of access and work load generated by such users is different from the traditional workloads seen in client-server systems

Cloud Storage for collision Database

The Design of an Adaptive Peer-to-Peer Network it reduce how it means the cloud of servers support thin clients with various types of service like Web pages and databases. On based on cloud computing peer to peer is now getting

very popular. Here we use collision database[12]. Collision induced absorption and emission refers to spectral features generated by inelastic collisions of molecules in a gas. Such inelastic collisions (along with the absorption or emission of photons) may induce quantum transitions in the molecules, or the molecules may form transient supra molecular complexes with spectral features different from the underlying molecules. Collision-induced absorption and emission is particularly important in dense gases, such as hydrogen and helium clouds in found in astronomical systems.

Cloud storage for Time-series database

In this real-time services they are having the huge capital investment in their own IT infrastructure and also told that open environment where customers can deploy IT service

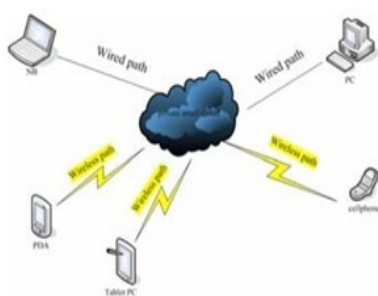


Figure 3. Cloud-mobile Computer via wired or wireless

providers may record service information in fig3 Cloud-mobile Computer via wired or wireless service process from a customer and then collectively deduce the customer's private information Here we use Time-series data base.

A time series database (TSDB) is a software system that is optimized for handling time series data, arrays of numbers indexed by time (a date time or a date time range). In some fields these time series are called profiles, curves, or traces. A time series of stock prices might be called a price curve. A time series of energy consumption might be called a load profile. A log of temperature values over time might be called a temperature trace.

Despite the disparate names, many of the same mathematical operations, queries, or database transactions are useful for analyzing all of them. The implementation of a database that can correctly, reliably, and efficiently implement

these operations must be specialized for time-series data.

Cloud storage for Spatial database

The location-based services and the abundant usage of smart phones and GPS-enabled devices. This is necessary to go that outsourcing data has grown rapidly over the past few years

.cloud storage and cloud computing services has provided a flexible and cost-effective platform for hosting data from businesses and individuals Here we use Spatial database [13].

A spatial database, or geo database is a database that is optimized to store and query data that represents objects defined in a geometric space. Most spatial databases allow representing simple geometric objects such as points, lines and polygons. Some spatial databases handle more complex structures such as 3D objects, topological coverage's, linear networks, and TINs. While typical databases are designed to manage various numeric and character types of data, additional functionality needs to be added for databases to process spatial data types efficiently. These are typically called geometry or feature. The Open Geospatial Consortium created the Simple Features specification and sets standards for adding spatial functionality to database systems

Cloud storage for graph database

XGD Bench is a graph database fig 4 Architecture of XGDB has been designed to operate in a current cloud environment. Cloud service benchmark to the domain of database bench-mark. It emphasizes on exascale cloud. This bench is centered on MAG model for realistic demonstrating of characteristic graphs Here we use graph database[14].

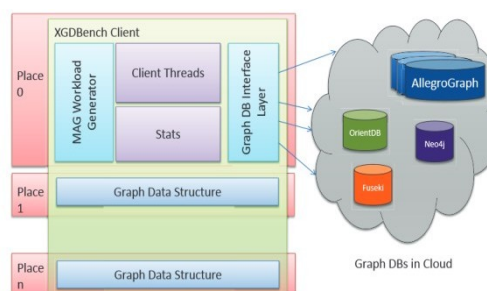


Figure 4. Architecture of XGDB

Graph databases have grown into increasingly popular for a variability of customs ranging from

modeling to tracking software engineering enslavements in fig5 Virtual hierarchy as a graph. These extents use graphs because it expresses the awkward in graph traversal. Including migration this is used in hybrid cloud. It will provide a dramatic gain in concert. These databases solve the difficult in cloud management. The graph language database is very dominant. Here we use graph database[15]

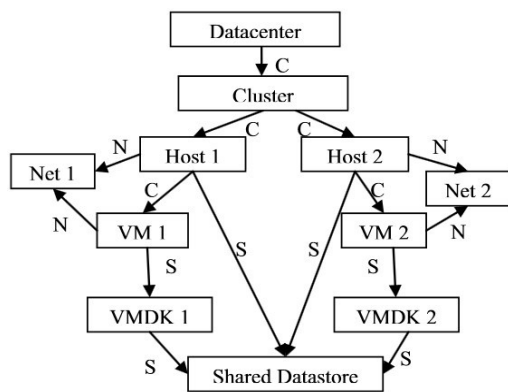


Figure 5. Virtual hierarchy as a graph

Cloud database are responsible for store data in high available form in cloud environment in fig5. The migration to one environment to another is difficult in that case cloud database uses to store and retrieve data. This provides a official way for drifting data among H Base as a column family database to Neo4j as graph database Here we use graph database[16].

1. OBSERVATIONS

1. Here we observe that the privacy preserving system store data base of storage architecture local administrator to cloud administrator

2. In this real time database we observe that intensive computer capabilities.

3. A private cloud with SaaS service to a real-time video, voice over IP.

4. To storing data in cloud computing is to get a better refine the result.

5. P2p system is a super-peer collaborative system.

6. In mobile device we use the three layers front end, middleware, backend for Designing and developing

7. The online database process is high performance have seen in exponential growth is past

8. In online database growth will be increases the storage capacity comparing toolod.

9. Using the web pages of database we reduce servers support in thin client of peer to peer.

4. CONCLUSION

Finally we conclude the survey of database in cloud computing to improve the storage and data effectively. And here we use Various types of Data base in cloud computing like Bibliographic database, Knowledge database, XML database, Online databases, Real- time databases, Bibliographic Database.

5. REFERENCES

[1] Qingjie MENG, Changqing GONG, Research of cloud computing security in digital library 6th International Conference on Information Management, Innovation Management and Industrial Engineering2013.

[2] Barcelona, Spain, Data Replication and Synchronization in P2PCollaborative Systems 26th IEEE International Conference on Advanced Information Networking and Applications 2012.

[3] Bao Rong Chang, HsiuFenTsai, Chi-Ming, Chen Yi-Sheng Chang, Chien-Feng Huang Cloud-Mobile Computing Based Real-Time VVoIP with PSO-ANFIS Tuning Conference on Technologies and Applications of Artificial Intelligence2013.

[4] Gaofeng Zhang, Yun Yang, Xiao Liu, Jinjun Chen, A Time-series Pattern based Noise Generation Strategy for Privacy Protection in Cloud Computing 12th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing 2012. Computing, 11th IEEE International Conference on Computer and Information Technology 2011.

[5] Rui Zhou, Jing Li, Jinghan Wang, Guowei Wang, A Knowledge-Based Development Approach with Fact and Service for End-User in Cloud Computing IEEE 37th Annual Computer Software and Applications Conference Workshops2013.

[6] TarunKarnwal, T. Sivakuma, G. Aghila A Comber Approach to Protect Cloud Computing against XML DDoS and HTTP DDoS attack IEEE Students' Conference on Electrical, Electronics and Computer Science 2012.

[7] David Taniar, High Performance Database Processing 26th IEEE International Conference on Advanced Information Networking and Applications 2012.

[8] Manar ABOUREZQ and Abdellah IDRISSE, Introduction of an outranking method in the cloud computing research and selection system based on the skyline.

[9] Maziyar Shariatpanahi, Peter Woods, Peter Wood, Designing and developing a location-based mobile tourism application by using cloud-based platform International Conference on Technology, Informatics, Management, Engineering & Environment (TIME-E 2013) Bandung, Indonesia, June 23-26, 2013.

[10] Apirajitha P.S., Anitha Angayarkanna, Design of an Adaptive Peer-to-Peer Network to Reduce Power Consumption Using Cloud Computing IEEE International Conference on Advanced Communication Control and Computing Technologies (ICACCCT) 2012.

[11] Ling Hu, Wei-Shinn Ku, Spiridon Bakiras, Cyrus Shahab, Spatial Query Integrity with Voronoi Neighbors IEEE TRANSACTIONS ON KNOWLEDGE AND DATA ENGINEERING, VOL. 25, no 4, April 2013.

[12] Miyuru Dayarathna, Toyotaro Suzumura, XGDBench:

[13] Vijayaraghavan Soundararajan and Shishir Kakaraddi, Applying Graph Databases to Cloud Management: An Exploration IEEE International Conference on Cloud Engineering 2014

[14] Mahdi Negahi Shirazi, Ho Chin Kuan, Hossein Dolatabadi, Design Patterns to Enable Data Portability between Clouds' Databases 12th International Conference on Computational Science and Its Applications 2012.