A Paper on Cloud Computing Management

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Abstract: The continuous growth in computer power provided an unprecedented flow of information during the last two decades. In fact, the new web technologies advances have made delivering and accessing content of any type easy and convenient for any user. It involved a paradigm shift in the computer architecture and processes of large scale data processing. Cloud computing is related to a new software technology distribution model. To order to reduce costs associated with hardware and computer resource management, this strategy moves the position of this system into a network. The task of developing reliable, accessible and flexible data management systems able to serve petabytes of information to millions of users was met both by the data management community and by large Internet firms. Current proposed data management systems, mainly driven by the prevailing software criteria, restrict the consistent access to only the granularity of individual objects, lines or keys, while sacrificing accuracy for high scalability and usability.

Keywords: Cloud Computing, Computing, Data Management, Storage, Security, Web Application.

INTRODUCTION

The challenge facing the database research community over more than two decades is robust and reliable information governance. Historically, the first standard approach for decentralized database systems was to work with information that is not limited to one server to allow universal serialization [1]. Due to the paralyzing impact on performance due to intermittent faults and overhead coordination, this model was not viable beyond a few computers. Consequently, most of these devices have never been used widely in manufacturing [2]. Consequently, a new class of modular data management applications has arisen in recent years. Each system handles data petabytes, meets the latency and reliability criteria of internet applications to satisfy unpredictable operating loads, and is focused on cluster architectures that stake claims in the domain for which the servers are inhabited. While a large proportion of current web applications meet the constraints of one-key access, a wide range of modern Web applications like digital multi-player games, social networking sites, etc. require consistent access over and above single key semantics. Current key-value stores cannot however handle these applications and must rely on conventional server systems to store content while the in-house apps comprises who developed these are handled by flexible key-value stores.

The goal of a flexible data management system at a very general level is to maintain quality and reliability over large data sets without substantial over-supply [3]. The use of capital requires a highly dynamic system. Not only from the point of view of what principles they use as shown in figure 1, but also the concepts they ignore, are the design of these structures interesting? To order to facilitate future work, careful analysis of these structures is required [4].

The purpose of this paper was to examine these systems carefully, in order to define the key development solutions that have made these systems functional and to pave the groundwork for the design of the next generation of information management systems for cloud applications.

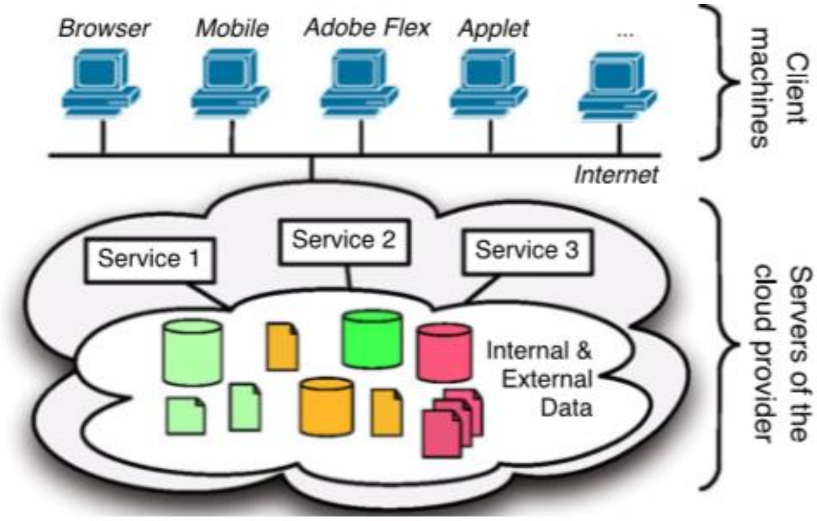

Figure 1: Data Service in Cloud

1. *Current Applications Scalable Analysis*

Abstractly, it is possible to model a distributed network as a mixture of two elements. The system status is the shared Meta data that is vital to the proper functioning and security of the system. To order to ensure proper functioning in the event of different types of errors, the classification includes strict coherence and fault sensitivity assurances. Nonetheless, scalability is not a key device criterion [5]. On the other hand, the client status represents the information or data relevant to the program that these programs contain. The reliability, scalability and functionality of the application state depends purely on the application type demands provided by the platform as shown in figure 2, and different systems offer different interconnections with different features. High scalability and high availability are often given greater importance. In most situations relational systems were made to view both the state of process and its implementations as a cohesive decentralized environment.

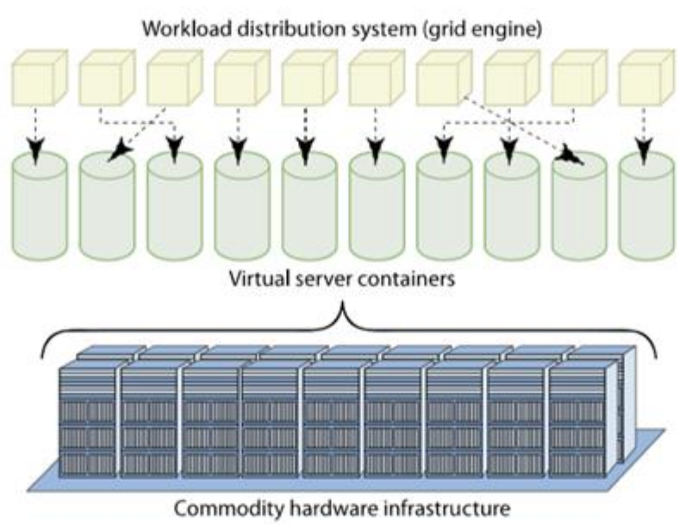

Figure 2: Exploitation of Virtualization in Cloud Computing

2. *Scalable Applications Next Generation*

In this chapter, we summarize the key design concepts requiring key value stores to be well flexible and elastic. The limitations of those key value stores for contemporary and potential implementations are then addressed and the foundation is laid to address design principles for the next generation of scalable data management systems that support complex applications as shown in figure 3, while providing reliable and clear access to data that are wider than single keys. The development of such stores is key to the growth of cloud-based data-rich applications.

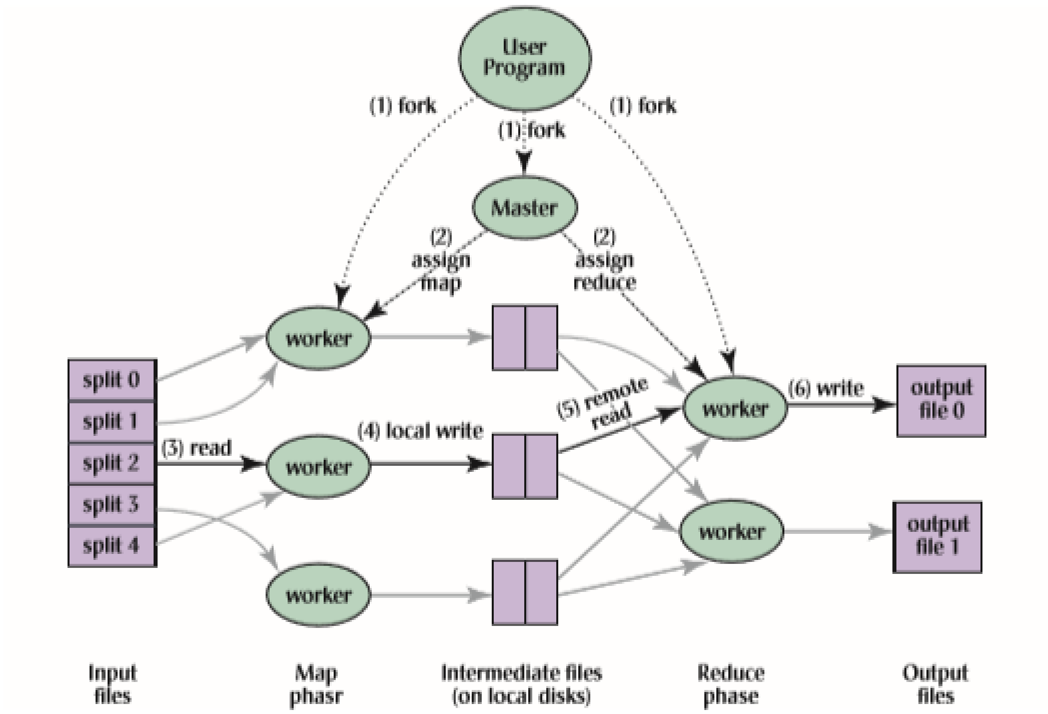

Figure 3: An Overview of the Flow of Execution a MapReduce Operation

3. Principles for Scalable Design

The stress some of the design choices that have made the key-value stores scalable:

3.1.*Device Separation and System State*: This is an important design factor that allows the various components of the device to be treated differently than regarded as a single whole. The process state is important and requires strict assurances of reliability, but instructions are smaller than those implemented as shown in figure 4. On the other hand, the state of implementation requires different degrees of reliability and functional stability and can therefore employ different means to ensure this.

3.2.Limiting activities on a single physical computer**:** limiting the process to horizontally partition and balancing the load and data. Therefore, the failure of some components of the network does not affect the work of the other components and causes serious deterioration in the event of a fault. In contrast, remote replication and associated costs are also eliminated. This concept is embodied in the modular model and forms the basis.

3.3.Limited distributed synchronization: Programs such as "Sinfonia" and "Chubby," which rely on distributed synchronization protocols, to provide consistent data storage in a distributed system have shown that distributed synchronization, when implemented carefully, can be incorporated in a flexible data management framework.

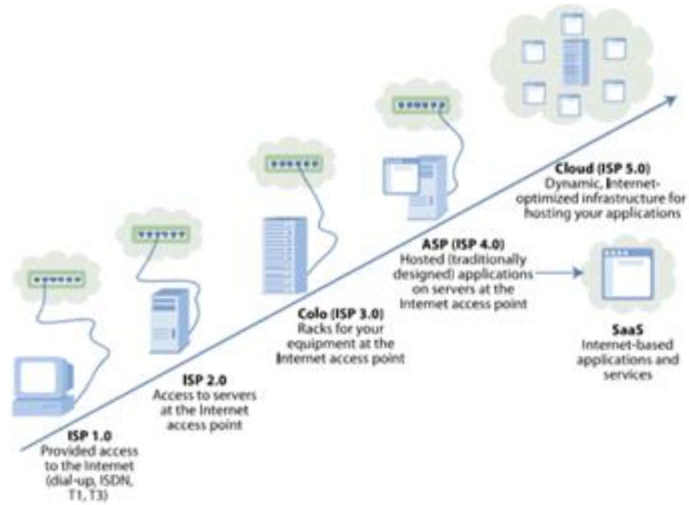

Figure 4: Evolution in Cloud Comoting

4. *Challenges in the Cloud Data Management*

They provide an overview of the main objectives and problems for the implementation of data-intensive cloud computing systems. It's not a trivial or straightforward task to develop data-intensive applications in a cloud environment. The following is a list of obstacles to the advancement of cloud-based applications.

4.1.*Service availability:* A distributed system is in theory a system that runs robustly over a wide network. Network computing is particularly well known as the probability of vanishing network connections. Organizations were concerned about the adequacy of cloud computing resources. High reliability is one of the most daunting targets, because there can be significant financial consequences and consumer confidence even for the slightest mistake.

4.2.“*Confidentiality of Data”:* The overall rise in potential security risks and appropriate measures is required to move data out of premises. Information Confidentiality Transaction data bases usually contain the whole collection of operating data needed to support business processes that are essential to missions as shown in figure 5. Such software provides the smallest detail and often includes sensitive information such as customer data or card numbers. Therefore, the data can be manipulated by a third party without the consent of the customer if such sensitive data is encrypted using a key not stored on the server.

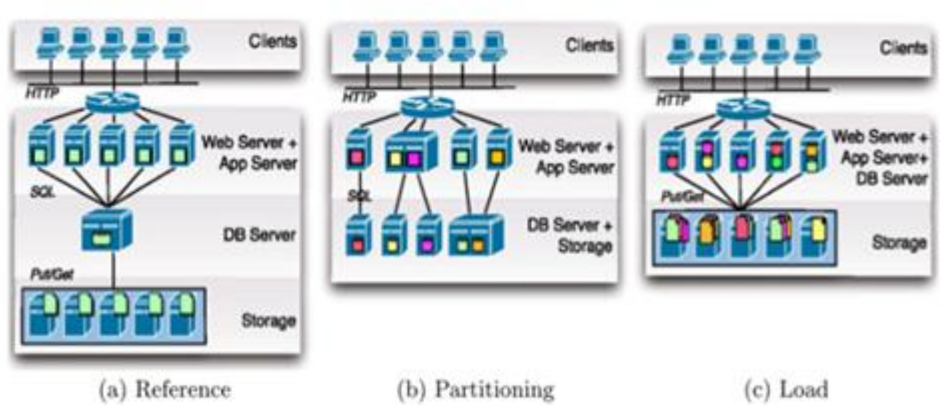

Figure 5: Architecture

4.3.“*Locked Data”-In*: Cloud computing APIs have not yet been fully implemented. Therefore, customer data and services cannot be quickly removed from one server to run on another. The issues with data extraction from databases stopping cloud computing by some organizations.

Customer lock-in may be enticing in the cloud, but cloud computing customers are vulnerable to price rises, reliability problems, or even business losses.

4.4. *Data Transference Engines*: The impacts of positioning and traffic at all stages must be understood by database clients and cloud providers if they are to reduce the costs.

4.5. *Computer Application Parallelization*: Computing power is flexible but only parallel with workload. It is not as easy to acquire additional computer resources as upgrading to a bigger and more powerful flying unit. Additional resources, though, are normally accessed through the allocation of other database instances.

4.6. *No Sharing Architecture:* A data-management framework designed to operate on top of the cloud will adopt a shared-none architecture. where every node is distinct and autonomous and no point of contention is present across the network. Many cross-border data system typically do not use a common-none architecture.

5. *Trade-off: Cloud data processing*

Generally speaking, a cloud provider offers the following features to web applications:

- *Cluster of elastic compute:* The Cluster comprises an elastic number of virtual instances that process and run the applications.
- *Continuous stocking:* User data is stored similarly to conventional files or file systems by the storage service.
- *Cloud-based networking:* The network within a cloud that links and binds digital instances to system infrastructure such as the on-going storage service.
- *Delivery Wide-area network:* The broad-based cloud distribution network delivers the contents of the software to the end users in several cloud data centers.

CONCLUSION

The main reasons for the accomplishment of the cloud computing paradigm are the elasticity, the pricing structure and use of commodity hardware, and the environment. The on-going performance of the paradigm thus involves the development of a robust and modular platform which is capable of providing data management as service. This framework will operate with commodity hardware efficiently and effectively while using data elasticity to manage the volatile loads of specialized applications in the cloud and to provide various levels of reliability and flexibility in accordance with the software specifications. The range of data management systems is composed of the distributed key value stores at one side, and the rigid, transnational structures on the other. To provide active data management for the wide range of cloud services, this limitation must be addressed with solutions that offer various levels of reliability and scalability. Our purpose in this paper is to lay the foundations for the development of a "clouded information" program.

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