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Model for the Multi-Source Data Analysis of Big Data Set Tools and Methods for a Customizable Healthcare System

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Abstract

The challenge of "big data" is to change how we collect, store, analyze, and learn from the data. How we "mined" data from possible multiple sources effectively and persuasively and obtained useful information is a critical question. Increased research has been focused on the mining of medical data with the aim of improving the quality of care. The human body is complex and the data collected in its treatment are also involved. Data noise, frequently introduced through the collection, makes the construction of models for data mining a problematic task. The objective of this survey is to study the Big Data domain, to provide an overview of free biomedical databases available and to use the technology for the selected databases. The patient-and-hospital-generated data can be collected from a high-performance computer, and cloud synchronization collects both medical history and genetic data. In order to analyze the data and apply MapReduce algorithms in HPC to build a structured database, we proposed a probabilistic data acquisition scheme. The system contains an interactive information collection warehouse that offers a two-way interaction between HPC and the cloud. We present a forecast algorithm to predict an illness in this research, which is done on cloud servers. For analytical prediction analyses, we use Random Forest, SVM, C5.0, Naive Bayes, and Artificial Neural Network.

Keywords: Big Data, Hadoop, Map Reduce, Health Care System, Cloud Computing

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INTERNET-OF-DRONES MIGRATION ACCURACY TRACKING IN CLOUD COMPUTING

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Abstract— **Cloud computing refers to the model of delivering hosted services over the internet and enabling on-demand network access to the computing resources. Scalability is a key feature of cloud. The ability to scale resources on demand is one of the biggest advantages of cloud computing. In order to achieve the ability, we need to know when and how to scale resources for different services. Workload for each service is predicted and it can be used for scaling the resources automatically in an efficient manner. The purpose of this survey is to study the different machine learning algorithms for predicting the workload and to design an auto-scaling approach which consists of pre-scaling and real-time scaling methods to scale the resources at different levels. This auto-scaling approach can satisfy Service Level Agreements (SLA) by providing less scaling cost and is beneficial for various workload decision systems on cloud platforms. The efficiency of various machine learning techniques are studied and analyzed.**

Index Terms*— *cloud computing; machine learning; workload; scalability

I. INTRODUCTION

Cloud computing is a kind of distributed computing that refers to both the applications delivered as services over the Internet and the hardware and systems software in the data centers that provide the services such as Infrastructure as a Service (IaaS), Platform as a service (PaaS), Software as a Service (SaaS). It provides the ability to quickly meet the business demands and one can get all the benefits of their application, data, and storage requirement without investing in the infrastructure.

Cloud platforms have to plan and provide resources in a faster manner so as to satisfy huge amounts of tasks. The major goal is to make sure that the requirements of users are being fulfilled properly with less power consumption and cost. Hence several mechanisms are implemented to characterize and forecast workload for a period of seconds or minutes [2]. Based on the future workload prediction, performance of each VM (Virtual Machine) is determined in advance and resources are scaled accordingly. The estimate includes the fraction of capacity to be assigned to each VM and the number of requests effectively served which ensures cost minimization and service quality. This provision is widely used for real-time control functions, capacity planning, resource allocation and datacenter energy saving to predict the effects of adding and removing resources in cloud computing environment. With the help of effective prediction of workload, system administrators might take necessary actions to prevent the system from damage caused by high load.

The future workload can be predicted with the help of various machine learning techniques [2]. Machine learning is a form of artificial intelligence in which an application can learn from processing real data using algorithms to enhance predictability and make necessary arrangements for unexpected outcomes. Companies such as Google, Amazon, Microsoft integrates machine learning algorithms with their cloud services for the ability to predict the future for both tactical and strategic purposes. Developers can build learning capabilities into their own applications with the help of machine learning techniques. It integrates many distinct approaches such as reinforcement learning, probability theory, combinatorial optimization, control theory.

Prediction of workload is very essential for better performance of the system. Depending on the predicted workload, the resources are to be scaled properly. Generally, there are two types of methods of scaling namely horizontal scaling and vertical scaling [3]. When the system finds a higher utilization exceeding the upper threshold value, the horizontal scaling or the vertical scaling can be executed.

Horizontal scaling deals with the adjustment of VM instances and provides a larger scale resource. It takes few minutes to boot a VM. Horizontal scaling is suitable for applications that have a clustered framework in which a master node will distribute requests among the worker nodes which are represented as VM in cloud environment. The reconfiguration cost varies among applications and this kind of scaling is suitable for enterprise clouds. Vertical scaling deals with changing the partition of resources inside a VM and it can scale resources in a few milliseconds. Most of the hypervisors go for on-line VM resizing without shutting down the VM. Live migration increases the scope of vertical scaling because a scaled VM can be provided with additional resources by migrating other VMs in the server. Vertical scaling is widely used for dynamic consolidation in datacenters.

The individual benefits of horizontal scaling and vertical scaling may enhance the performance of a system but are limited in certain situations. Horizontal scaling takes a while

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Implementation of Pixel Likeness Weighted Frame (Plwf) Filter Technique Based Digital Image Denoising for DSP Applications

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ABSTRACT: *Digital images are often corrupted by contaminated display and information quality noise. Images can be corrupted at any stage during which they are acquired and transmitted through the media. Image denoising is a basic function designed to eliminate noise from naturally corrupted images. This work proposes a fixed-point discrete wavelet transform (DWT) architecture that uses a nonlinearly modified pixel-like weighted frame (PLWF) technique to denoise the high-throughput of adaptive white Gaussian white noise (AWGN) images. The linearized state to be based on the neighboring pixel unity is that the state model noise is used to improve the peak signal to the sound rate (PSNR). The proposed architecture is employed in two different stages - consistent and conditional sorting output selection unit. The detailed result of the proposed architecture shows the size and display quality of any state-of-the-art performance and some recently introduced work. For further evaluation of the denoising capability, the algorithm is compared to some state-of-the-art algorithms and experimental results on simulated sound images and captured images of low-light noise especially large image processes Low noise light picked up by the test results. The performance of the proposed method is compared to wavelet thresholds, bilateral filters, non-local averaging filters, and bilateral multi-resolution filters. The study found that the draft production plan is smaller than the wavelet threshold, the bilateral filter, and the non-local means of filtering and larger superior/similar to the method, visual quality, PSNR and image index noise bilateral multi-resolution filter quality.*

Keywords: *Discrete Wavelet Transform, Adaptive White Gaussian Noise, Pixel Likeness Weighted Frame, Peak Signal to Noise Ratio, denoising*

I. INTRODUCTION

Noise can be generated during image capture and broadcast operations. Impulse noise, Gaussian noise and balanced noise are three important noises. Impulse noise is shown in a random distribution of pixels of bright and dark noise. The only real factor in viewing this image is corruption, but it seriously affects the visual effect of the image. Therefore, impulse noise cancellation is very important for computer vision analysis and image processing. A linear operation from the addition of the noise n(X, Y) or the multiplication of the signal s(X, Y) is shown in Figure 1. Once the damaged image w (x, y) is obtained, it is subjected to obtain the denoised image z (x, y) [1] using denoising technique. This work is different from the point of view of many denoising techniques and has noise diffusion to use linear or nonlinear filtering methods to reduce noise.

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Frequency intelligence details are easily confused with higher frequency noise and they are in the high frequency components of the image. Therefore, it is very important to effectively filter the image details and the random noise of the filter.

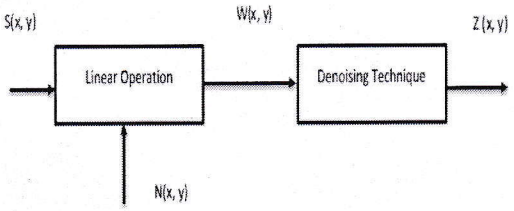

Figure 1. Image Denoising Concept

The median filter is a nonlinear filter that is widely used for digital image processing to reduce performance and impulse noise capacity because it has good characteristics of edging [2].The existing median and bilateral method are good for noise reduction effects but its complex time is not desirable. Therefore, a new image denoising algorithm using pixel pictographic weighted frame filtering techniques for noise removal has been introduced in this work. Based on the noise detection result, and the image selection pixel pictogram weighted frame filter, the algorithm adaptively eliminates impulsive blends in different fields. Using multiple simple classical filters, denoising conclusions on PLWF outputs are more than many states of art.

II. LITERATURE SURVEY

Image acquisition and transmission, noise is inevitable, reducing image quality, so denoising images is very important. The image denoising mechanism has been separated by the denoising outer domain noise reduction and frequency fields. The some of the existing filtering methods are wiener filter, median filter, mean filter, Fourier transform, Laplace transforms, and wavelet transforms [3-5]. he series of wavelet multi-scale tools are based on ripple theory to filter out effective such as curve let [6], direction let [7], let the noise in [8], and shear wave [9].In recent years different types of denoising methods are developed such as Non-local Average denoising [10], in [11] discuss the Gaussian mixture Model denoising, in [12] discuss the dictionary learning denoising [12] and sparse representation based denoising is presented at [13]. In addition, K-singular value decomposition (K-SVD) [15] is the most widely used for image denoising, and the K-SVD is basically a sparse based representation of noise reduction method, which is apparently in [16, 17]. However, the iteration of K-SVD is dealing with large data. So the K-SVD algorithm, which not

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SCALABLE AND SECURE DATA SHARING WITH EFFICIENT REVOCATION IN CLOUD COMPUTING

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***Abstract*— Cloud storage enables users to remotely store their data and enjoy the on-demand high quality cloud applications without the burden of local hardware and software management. Unfortunately, sharing data in a multi-owner manner while preserving data and identity privacy from an untrusted cloud is still a challenging issue, due to the frequent change of the membership. In order to address this new problem and further achieve a secure and dependable cloud storage service, We propose a secure multi-owner data sharing scheme. It implies that any user in the group can securely share data with others by the un-trusted cloud. Our proposed scheme is able to support dynamic groups efficiently. Specifically, new granted users can directly decrypt data files uploaded before their participation without contacting with data owners. User revocation can be easily achieved through a novel revocation list without updating the secret keys of the remaining users. The size and computation overhead of encryption are constant and independent with the number of revoked users. We provide secure and privacy-preserving access control to users, which guarantees any member in a group to anonymously utilize the cloud resource and leverages dynamic broadcast encryption and group signature mechanisms. Moreover, the real identities of data owners can be revealed by the group manager when disputes occur. We provide rigorous security analysis, and perform extensive simulations to demonstrate the efficiency of our scheme in terms of storage and computation overhead.**

***Index Terms*— Cloud computing, Dynamic groups, Data sharing, Privacy preserving, user revocation, Anonymity, traceability.**

I. INTRODUCTION

Cloud computing is a computing environment, where resources such as computing power, storage, network and software are abstracted and provided as services on the internet in a remotely accessible fashion. With the rapid development of Internet and Cloud computing, there are more and more network resources. Sharing the resources, management and on-demand allocation of network resources are particularly important in Cloud computing. The Cloud has become a new vehicle for delivering resources such as computing and storage to customers on demand. In cloud computing, the cloud service providers (CSPs), such as Amazon, are able to deliver various services to cloud users with the help of powerful datacenters. By migrating the local data management systems into cloud servers, users can enjoy high-quality services and save significant investments on their local infrastructures One of the most fundamental services offered by cloud providers is data storage. Considering a practical data application where a company allows its staffs in the same group or department to store and share files in the cloud

. By utilizing the cloud, the staffs can be completely released from the troublesome local data storage and maintenance. But, it also poses a significant risk to the confidentiality of those stored files. Specifically, the cloud servers managed by cloud providers are not fully trusted by users while the data files stored in the cloud may be sensitive and confidential, such as business plans. To preserve data privacy, a basic solution is to encrypt data files, and then upload the encrypted data into the cloud [21]. Unfortunately, designing an efficient and secure data sharing scheme for groups in the cloud is not an easy task due to the following challenging issues. The issues include preserving identity privacy, issues due to single ownership and maintaining dynamic groups.

A. Issues in secure data sharing:

First, identity privacy is one of the most