

A SURVEY ON PROCESS ELASTICITY PROFIT RATIO ON HETEROGENEOUS ENVIRONMENT

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ABSTRACT

The process elasticity is exploited on heterogeneous environment in a distributed system. Elasticity is the degree to which a system is able to adapt to workload changes by provisioning and de-provisioning resources in an autonomic manner, such that at each point in time the available resources match the current demand as closely as possible. Various approaches are considered like serial, parallel and hybrid approaches. Accordingly, profit ratio is calculated. Process mining is taken as a task to calculate the profit ratio. Resources that are considered are CPU, Bandwidth, Time and Temperature. Tools used to calculate the profit ratio is CPU-Z. The tasks that are involved are independent on each other. This paper calculates profit ratio of factors i.e. (CPU, Bandwidth, Memory, Time and Temperature) of different systems with different processors.

Keyword : - Distributed System, Distributed file system Parallel Processing, Resource allocation, scheduling, VM placement, distributed computing.

1. INTRODUCTION

Large works are done by managing the usage of resources like Time, Memory, and CPU etc. This results in fast processing of the request using different algorithms. This paper is about managing the Maximizing the profit using different approaches of giving inputs and outputs. Using distributed process elasticity and heterogeneity environment to propose a resource management framework that maximizes profit while calculating memory and bandwidth with energy. The proposed model will be implemented using distributed network using computational model to increase the profit ratio. The profit ratio is calculated by using three approaches which includes serial, parallel and hybrid approach. Parallelism can be achieved by using threading. Existing system have considered CPU and proposed system will consider memory, bandwidth, CPU and speed. For calculating profit ratio the existing system and proposed system will be compared. Closed domain and open source as UCI repository for data extraction will be used in proposed system. In thread parallelism the number of allocated threads determines how fast the task completes. Security based application using centralized distributed system for enhancing profit (speed, bandwidth, memory along with energy) earlier model was implemented using cloud computing considering CPU for increasing the profit ratio. The proposed model is being implemented using distributed system with computational model to increase the profit ratio. Existing system was about CPU consideration, proposed model is about managing of resources like memory, bandwidth, CPU, speed. There are various method are used like two threshold two divisor algorithm, byte rotational algorithm etc. for different purposes that are efficient to the project. The performances are going to be calculated like time, energy, bandwidth, memory etc. by using the tools like CPU-Z etc.

Now a day's security is important issue in the data communication. Many author has implemented different algorithms and techniques for achieve strong security. Every algorithm and techniques having different advantages

and disadvantages. Delay, throughput, energy consumption are the important QoS of the Sensor networks. Information security is major obstacle in different areas like military, network application, bank application. File is forward from one location to another location in the network. Many hackers are illegally access the information. To provide solution to this problem many authors has introduced different algorithms and techniques. The different algorithms like AES, DES and triple DES achieve more security but it takes more time for encryption and decryption files. These algorithm increases the complexity of the algorithm. Byte rotational algorithm provides more security with minimum time for encryption and decryption.

1.1 Related Work

The task elasticity and price heterogeneity to propose an online resource management framework that maximizes cloud profits while minimizing energy expenses. The Google data is used for accessing maximum data. For calculating profit ratio electricity bill is used as an example. To increase cloud profits by reducing the cloud centers electricity bills, it is divided into two parts one is Cluster Placements Techniques and second is PM Placement Techniques. In this paper framework exploits elasticity and varying charging costs among submitted requests and decides where to place heterogeneous submitted task requests. Authors also included future work which is that Task with multiple resources, Task with Dependencies, Task Pricing models and Testing on further real traces [1]. Another BRA algorithm is very important and is compared BRA algorithm (Byte Rotational Algorithm) with AES algorithm (Advanced Encryption Standard) for file encryption and decryption process. After Performance analysis they came to a conclusion that BRA algorithm is drastically better than the AES algorithm. BRA algorithm is complex to hackers. AES algorithm is strong in security but it takes more time to encryption and decryption. Whereas, BRA algorithm provides more security and it takes less time to encrypt and decrypt file than AES algorithm. BRA algorithm uses Random key generation technique and symmetric key. It also included that future work will be implementing a new Hybrid encryption and decryption algorithm to reduce time and improve network security [2].

For any data de-duplication system, chunking is the most time consuming processes since it has to traverse entire file without any exception. The process time of chunking totally depends on how the chunking algorithms break a file. Moreover, the smaller the size of a chunk has the better result a de-duplication system has. Increasing the number of chunks, however, results in increasing the processing time provides the comparison between the Basic Sliding Window (BSW) algorithm and Two Thresholds Two Divisors (TTTTD) algorithm. TTTD algorithm is implemented to improve the BSW algorithm to control the variations of the chunk-size. The running time improvement of TTTD algorithm is provided. This contains the techniques like chunking and boundary shifting problem. TTTD algorithm contains four parameters the maximum threshold, the minimum threshold, the main divisor, and the second divisor. In this the maximum and minimum thresholds are used to eliminate very large sized and very small sized chunks to control the variations of chunk size.

The running time improvement of Two Thresholds Two Divisors algorithm is better than Basic Sliding Window algorithm[3]. The proposed framework is aimed at smooth migration of all or only a required portion of an ongoing IP service between a data center and user equipment of a 3GPP mobile network to another optimal DC with no service disruption. The service migration and continuity is supported by replacing IP addressing with service identification. Indeed, an FMC service application is identified, upon establishment, by a session service ID, dynamically changing along with the service being delivered over the session; it consists of a unique identifier of UE within the 3GPP mobile network, an identifier of the cloud service, and dynamically changing characteristics of the cloud service. The described FMC framework enables mobile cloud services to follow their respective mobile users during their journeys by migrating all or portions of services to the optimal DC to ensure them the best QoE[4].

1.2 System Design

A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system.

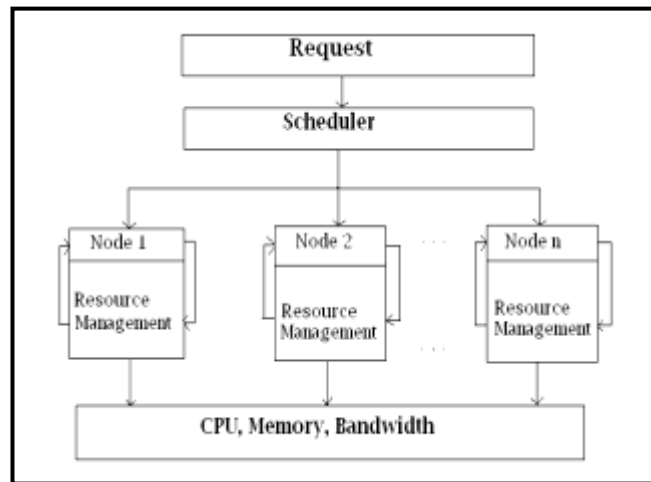


Figure 1: The system architecture

An architecture description is a description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system. The module calculates profit ratio for different approaches i.e. serial, parallel and hybrid. It works on distributed environment. Where a request is taken and with the help of the scheduler the task is allotted to suitable machine considering tasks and machines release time. In our module, tasks are independent on each other. Resources like CPU, Memory, Bandwidth, Time and Temperature is considered and the profit ratio is calculated.

2. METHODOLOGY

2.1 Chunking Algorithm

The entire file is partitioned into small pieces of chunk is the process of chunking. It is time consuming process. The process time of chunking totally depends on how the chunking algorithm breaks the file. While designing chunk, TTTD, Byte Rotational algorithms, the bandwidth, memory, speed are to be considered. According to how to break a file, there are three different chunking categories as shown in Figure. The de-duplication ratio of the fixed-size chunking is totally depending on what the fixed-size is. The smaller the fixed size is, the better de-duplication ratio has.

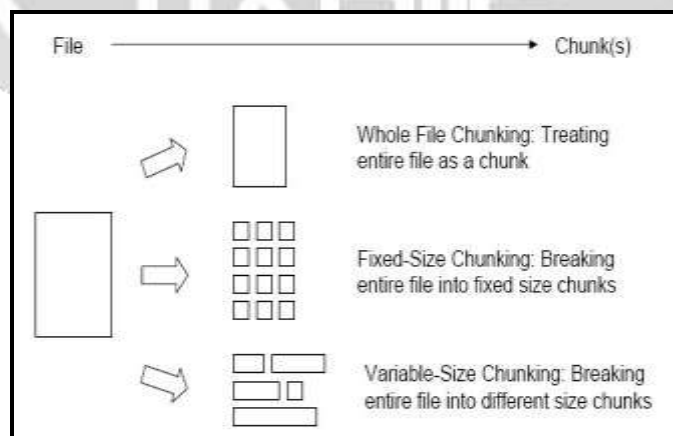


Figure 2: Different chunk categories [3]

2.2 The Two threshold two divisor algorithm:

The TTTD algorithm uses four parameters, the maximum threshold, the minimum threshold, the main divisor, and the second divisor. The maximum and minimum thresholds are used to eliminate very large-sized and very small-sized chunks in order to control the variations of chunk-size. In usual, the value of the second divisor is half of the main divisor. Due to its higher probability, second divisor assists algorithm to determine a backup breakpoint for chunks in case the algorithm cannot find any breakpoint by main divisor.

2.3 Byte Rotational algorithm:

This algorithm provides more security and takes smallest amount of time for file encryption and decryption. This algorithm can apply on different types of files like text, image, audio, video files. In the Byte Rotation Algorithm involve two techniques. One is random key generation technique is used. And second is parallel encryption and decryption is process using multithreading technique. Key size of random key generation technique is 128 bit. 128 bit random key generation is difficult for crack to attacker.

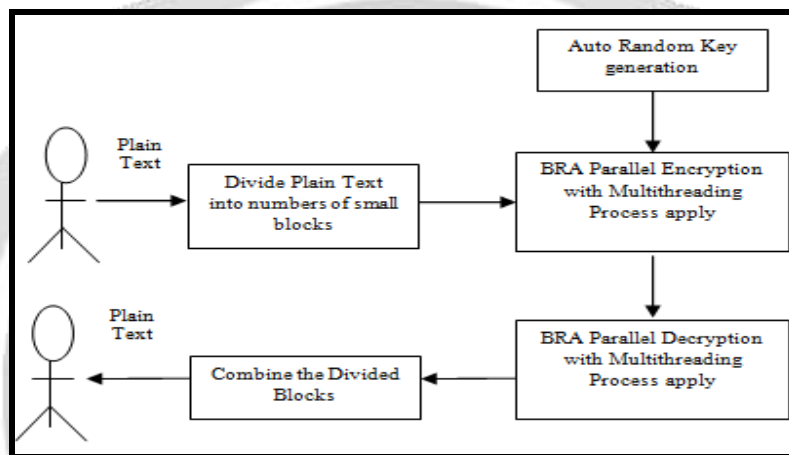


Figure 3: Architecture of Byte Rotational Algorithm [2]

In Architecture diagram shows the plain text divided into small blocks of data and BRA parallel encryption technique apply on small block of data. Parallel decryption technique decrypts the data and combine the divided block. After performance analysis of [2] result showed that the performance of byte rotational algorithm is drastically better as compared to AES algorithm.

3. CONCLUSIONS

A profit-driven online resource allocation framework for elastic and inelastic task requests is proposed. The framework exploits the elasticity and the varying charging costs among the submitted requests and decides where to place the heterogeneous submitted task requests, and how much resources should be allocated to the elastic ones such that the cloud profits are maximized while meeting all tasks demand. The various algorithms like chunking algorithm, byte rotational algorithm and TTTD algorithms are discussed. TTTD algorithm, not only successfully achieves the significant improvements in running time and average chunk-size, but also obtains the better controls on the variations of chunk-size by reducing the large-sized chunks. Byte rotational algorithm is fast encryption algorithm. Byte Rotational Algorithm is complex to hackers but it's a strong algorithm in case of security.

4. REFERENCES

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