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An Advanced Dynamic Load Balancing in Action for Seamless File Access

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ABSTRACT:

Cloud computing is the most advanced paradigm promising to show the vision of computing applicability into reality. It provides a versatile and straightforward way to store and retrieve immense information left-out concern the hardware required. Cloud based Storage (CS) incorporates a resource manager, cluster head and server clusters. Inside the resource manager the client's request for information service tasks to server clusters in line with the assignment features. And each cluster head distributes the assigned task to the servers inside its server cluster. Nowadays cloud computing is the most advanced paradigm promising to show the vision of computing applicability into reality.

Keywords: Dynamic load balancing,File access optimization, Distributed systems, Real-time monitoring, Load evaluation,Load redistribution algorithms.

I. INTRODUCTION:

Based on experimental observations, it is known that bandwidth utilization percentage is much higher than others. If bandwidth usage is the main consideration, additional file transfers from other protocols are the best way to add additional load to the server. In the experiment, multithreaded SCP clients[9] are run on one of the servers running the FTP clients, and files are transferred to a specific FTP server for additional loading [1].

In a software diagram, load balancing algorithms can be classified into static and dynamic algorithms. Studies have shown that both static load balancing scheduling and dynamic load balancing algorithms can improve cluster system performance. However, in practice, both planning methods still have some limitations [2].

Z-nodes stored with runtime load data are short-lived z-nodes. The online/offline behavior of the servers results in the corresponding child node being created and deleted in the "dynamic" znode. Therefore, the administrator registered a child listener on the "dynamic" z-node to receive information about the online/offline status, and a data listener on the corresponding znode on each server to receive information about the load change [3].

The complexity of coding must be moved to the cloud. In addition, transmission error tolerance, high data rate with low power and delay limitation are recommended for video streaming. Integrating multimedia content into IoMT leads to narrative applications. Typical examples are an intelligent multimedia monitoring system [4].

Habitat monitoring systems, road maintenance traffic monitoring systems, multimedia-based industrial monitoring systems and multimedia-based remote monitoring systems for ecological systems. IoT covers a wide range of application areas such as healthcare, industrial smart city environment ,the usage of an Iot network can be optimized [5].

II. LITERATURE SURVEY:

According to **Paula Fraga-Lamas**.et al., 2019 the automotive industry has undoubtedly changed society as it is one of the most complex, sophisticated and technologically advanced industries with innovations ranging from hybrid, electric and self-driving smart cars to the development of IoT connected cars. Due to its complexity, it requires the participation of several Industry 4.0 technologies such as robotics, advanced manufacturing systems, cyber-physical systems or augmented reality[6].

According **to Hongxun Hui**. et al., 2020 Demand response (DR) has been widely considered an effective way to provide regulatory services for smart grids by managing demand-side resources using new and advanced information and communication technologies. Emerging 5G networks and 5G-based

Internet of Things (IoT) can undoubtedly provide a better infrastructure for DR, because 5G has the advantages of high transmission speed, high reliability, strong data security, low energy consumption and a huge number of connections[7].

According to **Seyoon Ko**.et al., 2022 Technological advances in both hardware and software over the past decade have made access to high-performance computing (HPC) easier than ever. Let's look at these advances from a statistical computing perspective. Thanks to cloud technology, using supercomputers is affordable computing[8].

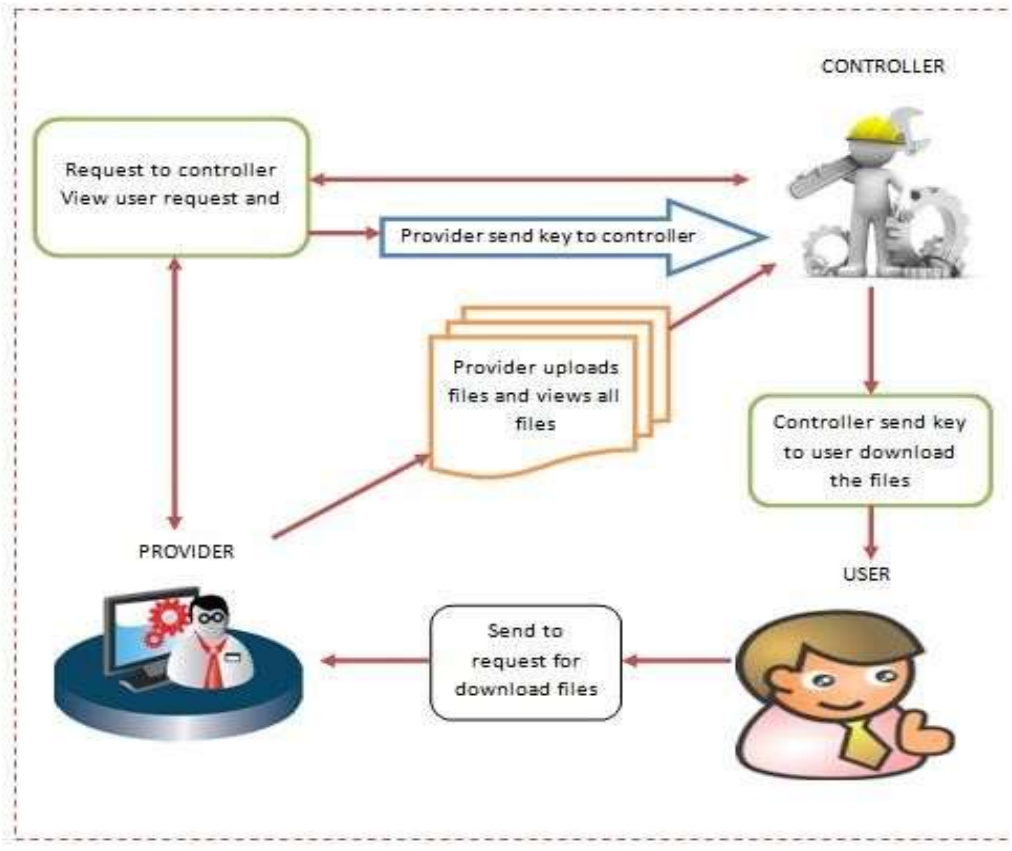
According to **Kit Yan Chan**. et al., 2021 Big data is no longer "all just hype" but is widely used in almost all areas of our businesses, governments and organizations with the help of artificial intelligence technology. Its impact is much more than just technological innovation, it affects every corner of the world. This chapter first provides a historical overview of big data[9].

According to **Suhaila Rabie**. et al., 2023 Efforts have been made to develop new tools and techniques, components and methods to solve problems in modern power systems such as system dynamics, stability, control, efficiency, reliability, economics, design and policy, etc. . and scientific innovations in many different fields[10].

III. PROPOSED SYSTEM:

Load balancing algorithm that is using for the users downloading file same time that time server.We download that time load balancing happen if all users download file same time that is load balancing and here data owner upload file the file and each users can show the data owners list and users can send the request for the cloud provider. If cloud provider accepts the request then user can download the file.

ARCHITECTURE DIAGRAM:



Explanation:

a) **USER:** User needs to firstly register by giving the information. After registration, user will login with username and password. User can view all files and give request for download the file. User can view notifications and download the file.

b) **DATA PROVIDER:** Data provider needs to login with username and password. Provider used to upload files and he/she can view all uploaded files. View all user given requests for files. Then data provider give request to the controller**.**

c) **DATA CONTROLLER:** Data controller used to control and monitor all data centers. we apply the SDN controller to enable the central control of the network, and jointly consider high bandwidth utilization for provider and low delay for users .Data controller needs to login with username and password. View request from the data provider and then controller will send key to user. Generate graph based on the over all user requests and generate graph based on the all the uploaded files.

IV. RESULT AND DISCUSSION:

Figure 1.REGISTER PAGE LOGIN PAGE

a) **REGISTER PAGE:** The Register Page was user-friendly with a simple design and efficient registration process. Users found it easy to navigate, and error handling was effective, leading to a positive overall experience.

b) **LOGIN PAGE:** The Login Page was praised for its simplicity and quick access features. Users appreciated the clear layout, responsive design, and robust error handling, making the login process seamless and secure.

Fig 2.USER HOME PAGE USER VIEW REQUEST PAGE

a) **USER HOME PAGE:** The User Home Page provided a clear and intuitive interface, allowing users to easily navigate through their account options and features. Feedback highlighted its user-friendly design, quick loading times, and efficient access to key functionalities, contributing to a positive user experience.

b) **USER VIEW REQUEST PAGE:** The User View Request Page was commended for its organized layout and straightforward presentation of request details. Users found it easy to view, manage, and track their requests due to the page's clarity and responsiveness

Fig 3.PROVIDER LOGIN PROVIDER UPLOAD FILE

a) **PROVIDER LOGIN:** The Provider Login page was user-friendly, with a straightforward login process and responsive design, leading to an efficient and positive experience for providers.

b) **PROVIDER UPLOAD FILE:** The Provider Upload File feature offered an easy-to-use interface, efficient uploading process, and reliable performance, meeting providers' needs for secure and prompt file uploads.

Fig 4.PROVIDER VIEW REQUESTS CONTROLLER LOGIN

a) **PROVIDER VIEW REQUESTS:** The Provider View Requests page presented a clear and organized layout, allowing providers to easily manage and track requests. Users found it intuitive and efficient, enhancing their ability to handle request information effectively.

b) **CONTROLLER LOGIN:** The Controller Login page was commended for its simplicity and user-friendly design. Controllers appreciated the straightforward login process and responsive interface, leading to a seamless and secure login experience.

Fig5.CONTROLLER

DATA CENTER FILE NAME BASED GRAPH

a) CONTROLLERDATA CENTER:

The Controller Data Center provided a comprehensive and organized overview of system data and operations. Controllers found the interface intuitive, with easy access to key metrics and information, facilitating efficient monitoring and management of the system.

b) FILE NAME BASED GRAPH:

The File Name Based Graph feature allowed controllers to visualize and analyze file- related data using file names as reference points. This graphical representation was praised for its clarity and informative insights, enabling controllers to easily track file activity, trends, and patterns within the system.

CONCLUSION:

The request allocation in geographically distributed datacenters. To efficiently allocate requests, apply the SDN controller to enable the central control of the network, and jointly consider high bandwidth utilization for provider and low delay for users. Specifically, the provider's requirement of high bandwidth utilization at all datacenters and users' low delay requirements are becomes fast process. The experimental results show that algorithm can efficiently improve the bandwidth utilization for the provider and reduce the delay for users, compared with both greedy and locality algorithms.The datacenters are used to balanced the load by genetic algorithm

.The Genetic algorithm for scheduling sets of freelance jobs algorithm is projected, the target is to reduce the make span. Each data center has the capacity and it is controlled by controller. Algorithm will search for the data center which has the maximum load balance; it will allocate the request to that data center

REFERENCE:

[1]. Andrew van Rooyen. Determining the optimal protocols for transfer of large data files. (2015).

[2]. Yichuan Jiang. A survey of task allocation and load balancing in distributed systems. IEEE Transactions on Parallel and Distributed Systems 27.2:285-299.(2016).

[3]. Artho, Cyrille, et al. Model-based API testing of Apache ZooKeeper. Software Testing, Verification and Validation (ICST),

2017 IEEE International Conference on. IEEE, 2017.

[4]. Asghari, P.; Rahmani, A.M.; Javadi, H.H.S. Internet of Things applications: A systematic review. Comput. Netw. 2019, 148, 241–261.

[5]. Hassan, R.; Qamar, F.; Hasan, M.K.; Aman, A.H.M.; Ahmed, A.S. Internet of Things and its applications: A comprehensive survey. Symmetry 2020, 12, 1674.

[6].Paula Fraga-Lamas, Tiago M Fernández- Caramés 2019,A review on blockchain technologies for an advanced and cyber- resilient automotive industry IEEE access 7, 17578-17598.

[7].Hongxun Hui, Yi Ding, Qingxin Shi, Fangxing Li, Yonghua Song, Jinyue Yan 2020,5G network-based Internet of Things for demand response in smart grid: A survey on application potential Applied Energy 257, 113972.

[8].Seyoon Ko, Hua Zhou, Jin J Zhou, Joong-Ho Won...High-performance statistical computing in the computing environments of the 2020 Statistical science: a review journal of the Institute of Mathematical Statistics 37 (4), 494, 2022..

[9].Bilal Abu-Salih, Pornpit Wongthongtham, Dengya Zhu, Kit Yan Chan, Amit Rudra, Bilal Abu-Salih, Pornpit Wongthongtham, Dengya Zhu, Kit Yan Chan, Amit Rudra 2021,Introduction to big data technology,Social Big Data Analytics: Practices, Techniques, and Applications, 1559,.

[10].Mohammed AM Yassin, Ashish Shrestha, Suhaila Rabie 2023,Digital twin in power system research and development: principle, scope, and challenges, Energy Reviews, 100039