Account + GST Inventory Management ERP System (Using Cloud Storage)

Harshvardhan R Patil[1], Sourabh R Kotgire[2], Nikhil S Madhekar[3], Priyanka N Shelke[4], Mrs. Ishwari Raskar[5]

[1, 2, 3, 4]BE Students, Dept. of Information Technology, Trinity College of Engineering and Research, Pune, Maharashtra
[5]Assistant Professor, Dept. of Information Technology, Trinity College of Engineering and Research, Pune, Maharashtra

Abstract: An ERP system or Enterprise Resource Planning System has been one of the most effective and useful implementations that have been highly effective and useful. The ERP's are extremely capable of providing a robust organization and streamlining of the entire business with ease. The ERP's have been extensively used in the recent years due to the immense cost benefits and effective management of the entire processes of running an organization. Deployment of ERP's is an extremely costly procedure as it is an extensive and detailed implementation, which is the reason why most of it was concentrated towards the large corporations. This has also been the reason why most of these innovative approaches were not as accessible for the medium and small businesses. The high cost also prevented many researchers in accessing these systems and implementing various improvements. Therefore, there is a need for an effective approach for designing a useful approach towards an ERP for the purpose of managing a small to medium organizations. This approach will be defined effectively in the future versions of this research study.
Keywords: Enterprise Resource Planning System, Cloud Storage.

I. INTRODUCTION

An Enterprise Resource Planning system is being introduced in this survey in the light of data management. A data management solution is a considerable software application that is employed to administer and supervise databases. It may generate, operate, and update databases. DBMS is the abbreviation for database management system. It can monitor and govern data in a consistent manner, ensuring information security and integrity. Consumers can utilize DBMS to control data in databases, while database administrators can implement DBMS to administer databases. A database management system (DBMS) can include a variety of services that allow clients or software applications to build,

change, or access databases using multiple strategies at the appropriate time.

The ERP's have been highly useful for the purpose of effectively organizing and improving the management of large corporations across the world. These large corporates deploy these systems by paying massive amount of money. This cost of deployment which is immensely large offsets the savings that are achieved through the implementation of such an approach. The corporations have been saving an extremely large amount of money after the deployment as it realizes a well-organized version of the current processes that are taking place in the corporations. This was highly focused on the large industries can companies as they could afford such a deployment at a massive scale, along with the development costs of the same.

This meant the medium and the small scale approaches have not been considered for this kind of deployment due to the cost and the lack of organizational structure. Due to the approach being black boxed at the large corporations, this has also excluded any valuable insight by the researchers and other developers in this regard. Majority of such implementations have been customized to fit the expectations and requirements of the particular organization in mind. Therefore, the deployment of such approaches for ERP increases the overall efficiency of the corporation as well as improves it to reach the respective goals for growth and employee satisfaction at the same time.

The designed approach can be used in a lot of different applications, such as the small and medium sized business of any kind. This implementation allows the user to effectively manage their organizations and achieve greater efficiency in their businesses. The expected users of this software are the business owner and the employees working in the company. The approach will be used by the employee to handle their expenses and salaries that along with any other correspondence with the managers. The managers can manage the requests and the various business related activities through this standalone application as well.

The file storage mechanisms that hold the content acquired from numerous user organizations are maintained by the data centers in cloud - based solutions. This data may be utilized for any commercial clients in the field. The data is stored by the enterprise operations using the huge storage capacity supplied by the cloud data centers. Storage as a service (SaaS) is an illustration of virtualized storage capacity provided to end customers.

The data saved on the cloud data storage retains high levels of data secrecy among clients. Amongst most legitimate users, harmful access control and manipulation still happen. Inconsistency amongst users is caused by an inadequacy of accessing data and alteration data on shared resources. On certain cloud storage architecture, the necessity of organization authorized modifications and shared information access capabilities is required. This data alteration and accessibility mechanism should indeed be agreed upon by all team members who use this common storage system to maintain data integrity.

Data solutions that operate in vast and flexible data centers in the cloud and therefore are retrieved via equipment linked through the network are expected to gain in popularity. Whenever the cloud is utilized for utilities and complementary services, cloud storage becomes useful. Images and movies, for instance, may be kept on the cloud rather than on a personal computer, allowing them to be accessed and maintained from anyplace. Rather than utilizing a computer machine at home, a company's invoicing solution can be put on the cloud. This concentrates on the objective - accessibility and simplicity of acquisition. The World Wide Web is utilized to store information, run computations, and do some other related operations. A group of self-managed activities can be controlled via the cloud to improve a company's dependability. The key benefit of using cloud storage would be that significant computational capabilities that we require may be made accessible in a cloud of machines or a cloud repository and employed once capabilities are required in a secure manner.

The addition of the cloud infrastructure to the ERP system can be extremely beneficial providing the much needed flexibility and security that is offered by the platform. This survey paper has been effective in achieving useful and reliable improvement in the small businesses by analysis of the related works in this field to achieve our methodology.

This literature survey paper segregates the section 2 for the evaluation of the past work in the configuration of a literature survey, and finally, section 3 provides the conclusion and the future work.

II.   RELATED WORKS

H. Zhong [1] describe a database management system that can handle and manage databases, as well as construct, utilize, and maintain them. Therefore, the database may be maintained and monitored universally, ensuring the database's safety and integrity. The database management system permit users to access the data in the database.

Database administrators may also use DDMS to maintain databases. It may provide a wide variety of capabilities, allowing several applications and users to utilize distinct techniques to build, change, and query databases at the same time.

Boafft, a decentralized deduplication cloud storage platform, is introduced by S. Luo et al. It provides scalable speed and capacity by parallelizing data deduplication across several storage nodes with negligible reduction of deduplication ratio [2]. First, Boafft employs an efficient and scalable routing algorithm depending on data resemblance, which not only saves network bandwidth consumption but also computes data storage locations fast. Second, each data server keeps a similarity index table in memory, which may be utilized to partially deduplicate data and reduce the amount of disc random reads/writes. Third, the authors optimize the data deduplication ratio on a single node by using a cache container of hot fingerprints depending on access frequency.

B. Hu et al. propose a cloud-based account service methodology and its implementation for the SME SaaS Ecosystem The account service seeks to provide business users with a multi-tenant, scalable, and accessible account management platform as a service [3]. Unlike existing open account systems, the proposed account service includes the following distinguishing features: 1) It will be configured as an individual public cloud service with a focus on enterprise applications, particularly SaaS; 2) Multi-tenancy is fully supported, and each enterprise is a tenant of the account service with clear boundaries with other tenants; and 3) The proposed mechanism includes partition-based distributed architecture that ensures the service is scalable and available.

S. Ramamoorthy presents a framework for cloud data access and modification depending on blockchain techniques. This hybrid approach prevents unauthorized data change and deletion within the community cloud environment. The usage of random hash values and a secure blockchain across cloud user nodes will improve the security of data access and modification. Furthermore, the security performance demonstrates that the suggested strategy effectively limits dangerous user behavior on this platform. OpenLedgers, which are maintained by blockchain technology, will be used in the proposed shared data access architecture [4]. The openLedgers are global tables that keep track of every node in the community network, as well as their data exchange and service information. The open ledgers are kept by the different nodes in this community network. The blockchain acts as a connection between nodes in the network, connecting them through chains.

To protect user information in a cloud context, S. Manjula et al. [5] proposed an architecture that leverages a secure technique that separates data into parts. The data partition on the cloud server assists in keeping hackers from reading the entire file. Furthermore, even if the hacker sees the saved file, he may not be able to distinguish which piece of the file it is or what data it contains since it is encrypted. Safe file distribution will be possible with adequate certification.

If one of the cloud servers dies, the system should be able to restore data from the other cloud servers by utilizing the replication technique. The encryption of the file with an unbreakable algorithm and the splitting of the file secure data privacy.

Z. Qiao et al. provide ACTOR, an active Cloud storage paradigm that employs the on-drive data processing power of Ethernet-connected drives as the intelligent big data analytic and storage solution. ACTOR employs a huge number of energy-efficient Ethernet-connected drives, which may assist big data applications in saving energy and money. Furthermore, processing data close to storage media allows delegating computing and storage management responsibilities to Ethernet-connected devices, resulting in increased parallelism [6]. This hardware parallelism might be utilized to handle huge volumes of data sent to storage systems by data-intensive applications. Even more network bandwidth may be saved by compressing and aggregating data before sending it, resulting in significantly less data being sent to computer nodes.

To save space, an efficient data storing mechanism has been devised by S. Muthurajkumar et al [7]. For improved performance, a novel approach called Temporal Data Deduplication Algorithm (TDDdA) has been presented in this system. This strategy focuses on allocating and demonstrating control responsibilities to users regularly, while indirectly permitting temporal limits to improve security. The suggested Temporal Data De-duplication Algorithm (TDDdA) is limited to two mechanisms, one with Temporal and one without. Furthermore, this work has been implemented in a real-time environment for auditing files and allowing the user to authenticate the file content. Another means of ensuring security is obfuscation, which may be used in directives to improve performance. The combination of obfuscation and encryption techniques will increase secrecy. This approach protects data in cloud storage against both internal and external client threats.

K. Al Nuaimi et al. suggested a clever storage optimization approach for the cloud. The primary objective is to increase download speed while decreasing storage consumption and expenses for clouds storing massive files. The collaborative dual-direction distribution from various cloud servers, which relies on the presence of many clones on the servers, increases download speed. Storage usage is increased by deleting the replicas' non-downloaded partitions from the remote server to make room for new files [8]. The removal of replica partitions depends on the knowledge gained from previous twin direction downloads. A customer, for example, has to send a new file to the cloud, but certain cloud servers may not have adequate room to accommodate this file. In this scenario, the authors seek for blocks that haven't been downloaded from that particular server in a predetermined length of time and delete them to make room for the new file.

C. -P. Chang et al. developed and built a cloud backup integration system that adapts to the demands of the user automatically. The system functions as a single file system, giving the user total control over his logical perspective. The file data is instantly uploaded to the cloud backup providers from the user's browser [9]. Although this design adds a modest overhead, the system includes features that can substantially simplify the management of these cloud storage accounts. Splitting files across multiple cloud storage accounts, moving file data to allow uploading for a file that should not be split, providing a single logical view that is not divided by cloud storage account boundaries and sharing the logical view with other users, and automatically determining the best account to place a file effectively are some of the features available.

A. Sharma proposed a multi-tenant data storage architecture based on NoSQL [10]. Cassandra, a column-based NoSQL family database, was chosen to create the data store. The suggested method has the advantage of being simple to provide data separation among tenants while providing flexibility in schema design or modification. The implementation results reveal that the suggested Multitenant architecture offers the needed data isolation to its tenants and performs well for big datasets, although query processing time rises for small datasets.

B. Sengupta et al. introduced a safe distributed cloud storage system for static data depending on HAIL's fundamental storage structure. POR assurances are provided by the program. For distributed cloud storage strategies, the authors define a security model. In contrast to HAIL, an adversary in the presented method cannot change a dispersion codeword without the client noticing [11]. In a static data scheme, the authors employ systematic Cauchy Reed-Solomon codes and present a mechanism for extending such codes to accept new symbols added to existing message symbols. The modifications to the parity symbols do not affect existing message symbols. The creation of such expandable code might be valuable in a variety of different applications.

L. Lei et al. deliver a ground-breaking mobile-cloud database service for storing and managing mobile data in cloud databases for mobile apps [12]. This solution not only provides a standard framework for connecting mobile apps to cloud databases but also overcomes the constraints of existing mobile databases by including desirable mobile cloud computing capabilities like multi-tenancy and elasticity. Meanwhile, it continues to give substantial mobile database features to mobile apps, such as mobility and location-aware, automatic session failover. Based on the results of the prototype application's experiments, the authors feel that the suggested MCloudDB strategy, by using existing cloud databases, provides an enhanced option for mobile data management and access.

I. Eisa et al. suggested a database management system (DBMS) architecture for cloud data centers that include novel storage management, monitoring, and concurrency control algorithms [13]. Transaction throughput has risen, and the rate of transaction aborts has decreased as a result of this effort. The findings reveal that the proposed storage management module takes less time to manage 'write and read' operations than alternative storage management systems such as RAID and Oracle ASM. The proposed approach handles transactions better than previous storage management systems when applications access databases on different columns with various frequencies, since it parallelizes the 'read' operation among storage devices, depending on applications. Because numerous servers perform the transaction concurrently, reading data from multiple pieces takes less time than reading data from a single fragment.

III. CONCLUSION AND FUTURE SCOPE

This survey article describes an ERP system, or Enterprise Resource Planning Framework, which has shown to become one of the very successful and helpful deployments. ERPs are incredibly competent of easily organizing and simplifying the complete corporation. ERPs have indeed been increasingly popular over the years as a result of their significant cost savings and ability to effectively manage all aspects of an employee's performance. ERP administration is an enormously expensive operation due to the vast and complex nature of the development, so that's why the majority of it has been focused on huge organizations. That's also why the majority among these creative ideas have been out of reach for small and medium size firms. Many academics were also unable to acquire these technologies and apply numerous modifications due to the enormous expense. Therefore, there is a need for an effective approach towards an ERP system which consists of 2 levels of access, namely, Employee, and Managers, along with the introduction of the cloud storage for easier accessibility and scalability.

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