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Cloud Based Global Pharma Solutions

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Abstract: *Cloud Technology consists of Software-As-A-Service (SAAS) model, which gives many users the freedom to use the single application in which the application will be hosted centrally for the customers. In Current scenarios customers have their own software's which are managed by themselves. The term SAAS would provide advantage known as "Multi-tenancy" in cloud terms, which says that one application can be shared by many users at the same time. Cloud based Global Pharma Solutions is comprised of the current medical store inventory system which manages the day-to-day chores of the medical stores which stores inventory centrally over the cloud. This comes as a much cheaper option than developing separate software for thousands of pharmaceutical stores but to use a single website for all of them. Also the website will feature a search medicine option in it which will show the customers or normal users the availability of the medicines within their locality.*

Keywords: *Cloud, Inventory System, Pharmaceutical Stores, Multi-tenancy, SAAS*

I. Introduction

Nowadays there is a trend of inventory management system in all the places where there is need to keep track of things daily. So many retails owners are opting for a change and they are adopting the software based inventory management systems, which are generally made by some software developers and for which they have a hefty price then be it their development or maintenance the traditional way of doing this - maintaining registers, writing bills of customers, to do lists, etc. all manually are very hectic jobs.

Cloud computing is a computing paradigm, where a large pool of systems is connected in private or public networks, to provide dynamically scalable infrastructure for application, data and file storage. With the advent of this technology, the cost of computation, application hosting, content storage and delivery is reduced significantly [5].

Through Cloud based Global Pharma Solutions nowadays, the track of in and out of all the medicines or other things can be kept an eye on. This is so much easy and faster. Also cloud is an emerging technology with a much strong user acceptance base in so much short time. So how it would be to make this both things work together and combine them to prepare a better option for both the customers/user and the retailers. The users can go directly to the website and see the medical stores which have the medicines and order from them/reserve for them. Also they get to see the medicines in their locality first if present if not then further from them. All in one, the retailers can get their application like personal from the website and the users can their work get done quickly without having to go here and there in search of medicines. Scalability, Elasticity, Cost Reduction, Minimum Management Effort, and Device/location independence.

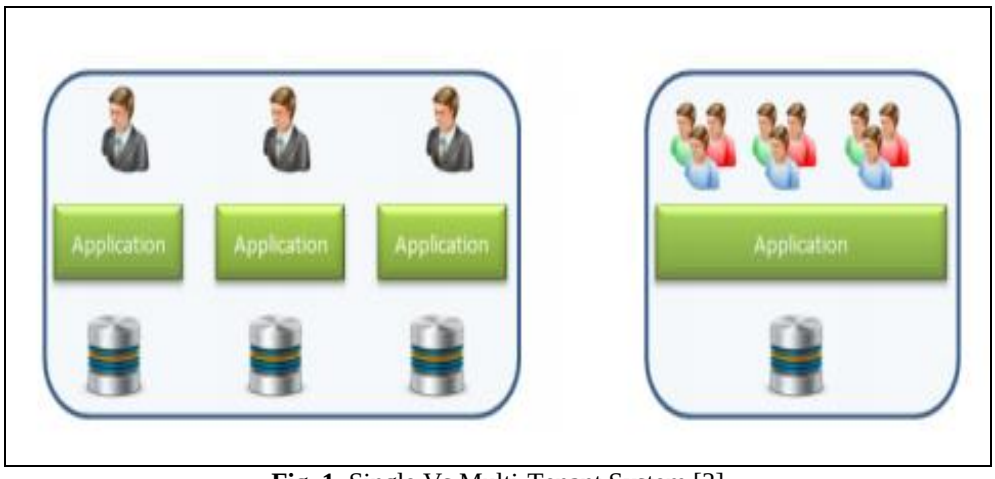

Fig. 1. Single Vs Multi-Tenant System [3]

This project is based on Multi-tenant system, which is a significant property of cloud. Multi-tenancy is different from multi-instance architecture (Figure 1) where separated instances of the same software are hosted on different servers to serve different tenants [3].

II. Literature Survey

There are numerous vendors who make this type of medical inventory management software's for medical stores. To name some are Mensons, TechnoSoft etc. Taking example of TechnoSoft's software we got to see the GUI which had medical name on top of the software application. A search box for searching medicines- be it the name of the medicines, manufacturer, lot number, prices, etc. There is also a website named "Intacct" which says- *"When it comes to managing inventory, you can't afford to have too much or too little stock on the shelves. Unfortunately, inventory can be a rapidly moving target. You may have multiple warehouses. With Intacct's cloud-based solution for managing inventory, it's easier to track, value, and manage your stock—maintaining accuracy at every step of the way."* [4]

The whole software is connected to the bar code scanner through which the chemist scans the barcode on the medicines and the entry for the same would be done in the software with full details. The option of printing the receipt is also available in the existing software. The database is not stored centrally but stored in same machine. The software also requires proper maintenance from time to time by its vendors.

The users need to come personally to the medical stores and ask for the medicines if they are present in that store and if not go to the other stores and ask there. So this is a lot of time consuming task. Also if the customer needs more number of medicines and the store has less then again go in other shop and take the remaining from them.

III. Existing System

The existing system is only software which is made for a personal medical store management provided by different vendors and they charge a handsome amount for it. As the database is stored in the same machine that of software, so the storage space problem arises in it. In case of some crash or calamity, the data cannot be backed up or restored back. Also the initial investment is high and maintenance too. Despite there is no search facility of the medical stores for the availability of the medicines for the people in their locality. Despite, there is also the maintenance cost which the medical store owner has to bear from time to time. This project is a medical inventory management system which will ease the use of customers and users both by providing them a website which will be like personal for them and managed and backed up daily on cloud and that too in less cost also the users will find it useful for finding the medicines in within their locality.

IV. Proposed Mechanism

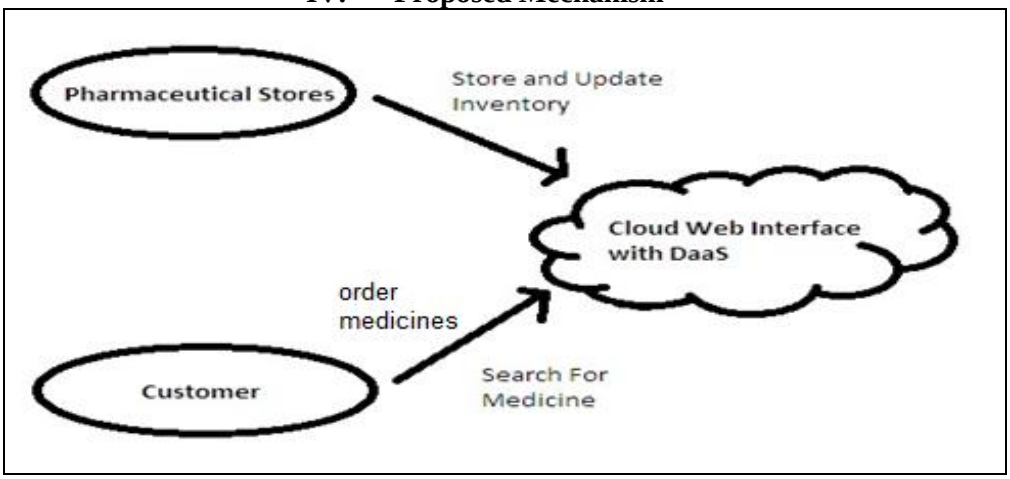

Fig. 2. Proposed Mechanism

The proposed mechanism for our project is to use the 3-tier architecture framework to develop the website in order to fit the Software-As-A-Service (SAAS) model type of the cloud deployment. And also to lessen the work and make easier to handle the daily mechanism of the vendors and users through our project.

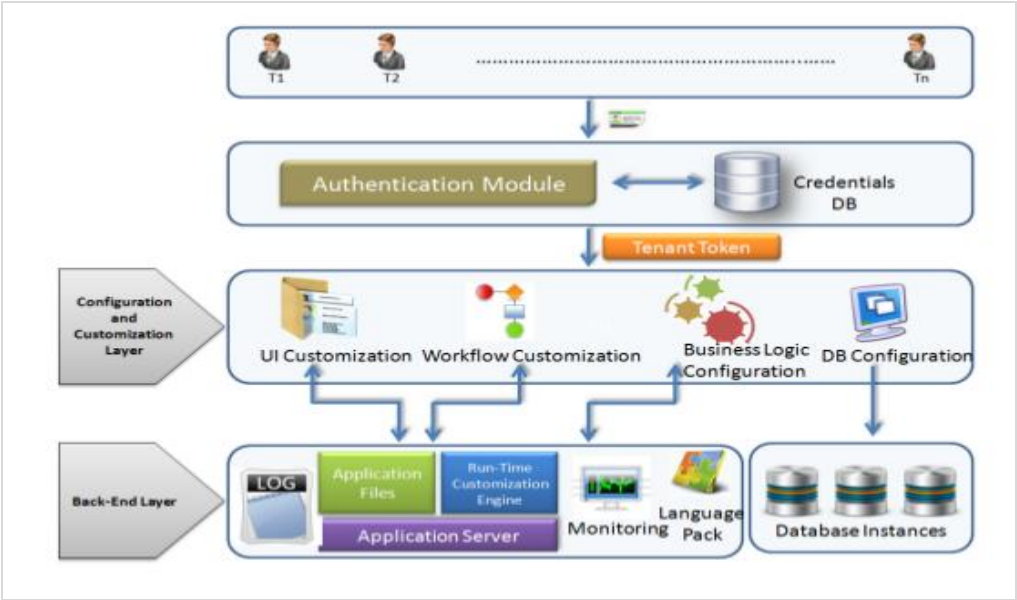

Fig. 3. Three Tier Architecture Framework of SAAS [1]

The frontend (website development) of this project will be in .NET platform, while the coding of the same will be in C#. The backend (database) will be developed in Microsoft SQL server. The website has two sections- one for the inventory management of the pharmaceuticals of the medical stores while the other will be for the users to search the medicines and order medicines within their locality. The website will be hosted on the cloud and will be made available through public domain on the internet.

The concept of Software-As-A-Service (SAAS) is used here in which this website will be hosted centrally for the customers and those who want to use the website have to register first and the respective databases for the customers will be generated automatically with their medical store names on it. The security which will be an advantage for this project comes from the fact that the databases cannot be seen by each other until there is a *"Controlled Authentication"* from other side.

V. Methodology Used

Cloud is used here as we have a convenient, on-demand access to shared pool of resources such as servers, storage, and applications, over the internet. Its salient features include: on-demand self-service, broad network access, resource pooling, rapid elasticity, measured service.

SAAS is the capability of the provider's applications running on a cloud infrastructure [2]. The applications are accessible from various client devices through a web browser. AWS has announced future support for auto-scaling, load balancing and monitoring both individually and as a suite of services to help solve this problem in a simpler fashion.

(http://www.allthingsdistributed.com/2008/10/using_the_cloud_to_build_highl.html) [10].

As in the case of PAAS, the customer does not manage or control the underlying cloud infrastructure or the application features. The customer can; however, configure user-specific application parameters and settings [6].

SAAS provides several benefits: users get to use the application over the internet without the onus of buying, implementing, or managing the software. Like IAAS and PAAS, the fee is priced on the usage-basis, whereby customers purchase rights to use certain or all modules as required. Although SAAS and ASP may appear to be the same, they are different.

SAAS is multitenant application hosted by the developer, timely updates from them. SAAS provides presentation, security, identity and federation, SSO, RBAC, authorization and authentication, regulatory controls, cost aspect, flexibility aspect [7][8]. Shared, virtualized servers, network and storage systems form a resource pool, built to be web-based, and used over the public internet [2].

VI. Steps To Be Followed

Pharmaceutical stores:

1. Store manager will register his/her store with the system.
2. Enter the medicine details into the inventory.
3. Store manager can see the placed orders, add, update, and delete medicine details.
4. Change his/her profile details.

Customer:

1. Customers can search medicines within their locality.
2. At the time of ordering the medicines they have to register and place the order.
3. They can check the status of their ordered medicines.

VII. Conclusion

The project Cloud Based Global Pharma Solutions will cater all the requirements of the customers as well as the users to find a better option in the current medical inventory management system. The conclusions generated from this are like there will be a cheaper option for the medical owners, easy handling of the medicines and also the customers will have less time consuming process of buying the medicines.

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