Automated Medicine Repository

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Abstract:　The aim of the paper is to improve self-dependent healthcare for patients who need to depend on themselves for their daily health needs through technology. With many patients and householders taking regular medicine which do not require any formal prescription, this solution will be helpful to those people. The Main working of this project has a cloud service provider through which we deploy our application to run the result.

IndexTerms – **Automation, Cloud, Healthcare Technologies**

I. INTRODUCTION

1.1.1 AWS CLOUD PLATFORM

Automation is a key process of working of any software or hardware or any IT Component. It allows zero touch points to extract data or any log. The same quality of automation is applied from a business perspective to a home ground perspective by automating a standard issue in our home- medicine data. The software automatically takes the information of the medicine, it's number of doses and its expiry date. Based on the type of alert we require, we can configure it to send either a SMS or an e-mail.

The automation provides instant medication details even in the remotest of the locations geographically due to the cloud infrastructure available to remotest of the users due to regional end points and low latency. The medicine alerts are timed accordingly so that it can deliver the data in a proper fashion.

1.1.2 ON PREMISES SOLUTION

On premises solution involves of using physical it infrastructure components and applications such as servers, Racks,power cables, cooling setup, low latency network access and fault tolerant connectivity.

The steps used for implementing on premise solution were as follows:

I. Components selection.
Ii. Server patching and upgrades.
Iii. Installing software applications and packages.
Iv. Implementation of the low latency data transfer system.
V. Perform iat and uat testing before pushing to the prod environment.
Vi. Implementing fault tolerance testing.
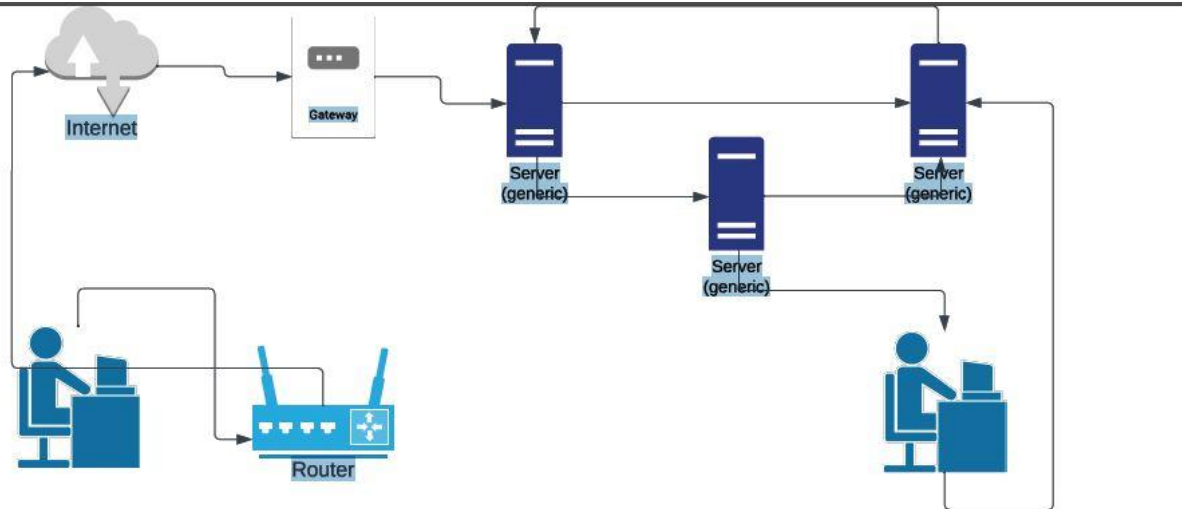Vii. Ensure automation for the data.

1.1.3 ON PREMISES ARCHITECTURE

Figure1: On Premises Medicine Repository Solution.

1.1.4 DISADVANTAGES

The major disadvantages of on-premises solution are:

I.　Fault tolerant
II.　Low bandwidth
III.　High latency
IV.　No data duplication and automated backup
V.　More capital expenses and less operational expenses.

These disadvantages make the solution less reliable and prone to many errors. In case of deploying the same solution on   large scale enterprise grade resolution wherein many users try to access the application causes the applications to be   subjected to false ddos attacks thereby the software application to crash.

moreover the amount of capital expenses required to run such application using just on premises infrastructure makes it an expensive affair.

II. PROPOSED SOLUTION

2.1.1 INTRODUCTION TO SOLUTION

The proposed system includes the implementation of a cloud based automated messaging system built on AWS well architected framework. It uses AWS SNS (Simple Notification Service) to notify the end-users patients of the related data. The notification service builds the data message using AWS API gateway architecture. The data once it's obtained from the database, it is then forwarded to the SNS from where it takes the data to be sent to the patients or the end-users. The proposed solution is also HIPAA compliant which means that the data residing in the software's databases would be deleted at the request of the patient who wishes to have privacy. With cloud service based infrastructure it allows healthcare companies to plan, configure deploy and scale the application meeting challenging business requirements.

2.1.2 REQUIREMENTS

The major requirements for this project are:

- AWS Cloud Root User Access
- HIPAA Document Guidelines
- Python Scripting- v3.11.10

2.1.3 PROPOSED SOLUTION ARCHITECTURE

The solution architecture consists of a ec2-light sail instance. It consists of the software which has been deployed. The data will be residing in a RDS instance, also known as Relational Database Service instance backed by MySQL server. For end users and other healthcare professionals using this application, can refer to the HIPAA compliance documentation by referring to the AWS Artifact, which is a service storing all the information related to the solution architecture, compliance and privacy and law statements regarding the geopolitical information of the software.
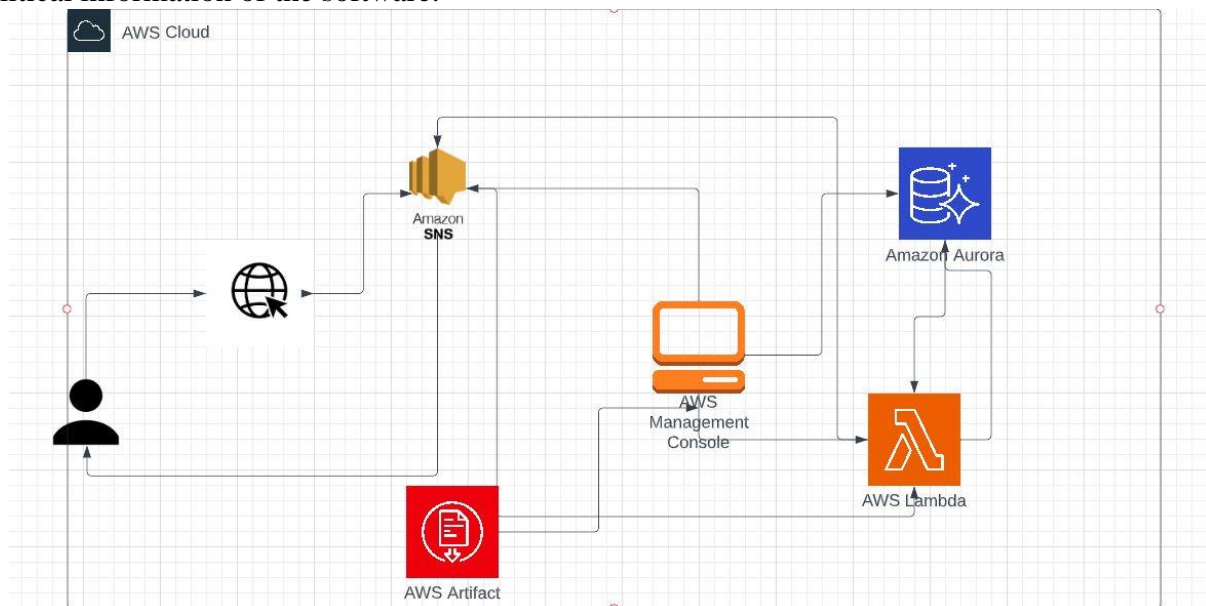

Figure2: Cloud Based Medicine Repository Solution.

III. CONCLUSION

It was observed that the software was able to accurately provide the data based on the notification settings enabled by the users to receive information about the medicines available for use and their expiry date.

The medicines that have number of doses prescribed and authorized by a healthcare professional has been taken from the database and messaging API is constructed using AWS SNS. The SNS would be giving the right information to the end user or the patient who will be using the information for managing their medication.

IV. ACKNOWLEDGEMENT

V. REFERENCES

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