LeMUR-Lead Management Update & Report

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***Abstract* — We have built an easy to use application that offers lead management services for a franchisee management system(FMS). New leads get stored in LeMUR database, which are made available to FMS staff for initial appraisal, and further processing. LeMUR is a self explanatory application that guides the user seamlessly from one operation to the next. From assigning a task list to the hopeful franchisee, to continuously monitoring the growth, and making the final decision of choosing or not choosing, LeMUR has got everything covered.**

***Keywords* — lead management, seamless operation, FMS, Amazon cloud, REDIS, NodeJS, Express, MySQL**

I. Introduction

Franchisee Management System is an essential part of growing one's business, and also to manage an existing flourishing business. FMS assists with the onboarding of new franchisees, communications, compliance notifications and lead management. Apart from this, it also provides the functionality to keep track of revenue, each franchisee is making. Enables the franchisees to connect with each other, share files etc, thus making all the franchisees function as a single unit. It simplifies inventory management and supply chain. The head office can get real time overview of key financial data like revenue, cash flow, expenses per franchise, profits and losses.

FMS allows franchisors to access all this on a single platform. The scope of this system however, is managing leads and setting up criteria for leads that the franchisor sets up. The franchisor can keep track of what criteria which leads satisfy, and accordingly can select the desired lead to become the franchisee.

II. POSITIONING STATEMENT

For franchisor who need to manage multiple leads (franchisees). LeMUR is a franchisee management system that allows the franchisor to keep track of all their leads in one place, convert them into franchisee, generate reports and so on. Unlike other FMS systems, LeMUR will provide a simpler start to end lead management process.

III. ARCHITECTURE

LeMUR web app is implemented using following technology:

A. NodeJS[1]
B. Express[2]
C. MySQL[3]

A. Database

Database is currently hosted on Amazon cloud RDS (MYSQL dev/test use case) which stores all the information of the LeMUR system currently, the number of instance of the current DB can be increased by creating a DB cluster. The DB has **schema diagram** which is provided in the Section D of the report. LeMUR also uses **REDIS** sql caching and connection pooling for serving request faster.

B. Server Implementation

LeMUR web application is currently being served on a single Amazon cloud ec2 micro instance (Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-43a15f3e) , all the request are being served by the single instance.,which can be distributed to serve on multiple instances if the load increases using elastic load balancer provided by amazon and adding new instances(servers). The Audit logs are also implemented on the servers as well to keeptrack of the activity on the server.

C. Deployment

LeMUR is a node express application, which is deployed on amazon cloud ec2 micro instance by using nohup functionality of ubuntu servers and nodemon(a node.js dependency) it is connected to Database which is hosted on a single Amazon cloud RDS instance with current limit of 20GB and can be increased as needed.

D. Figures and Tables

i. Basic functionality:

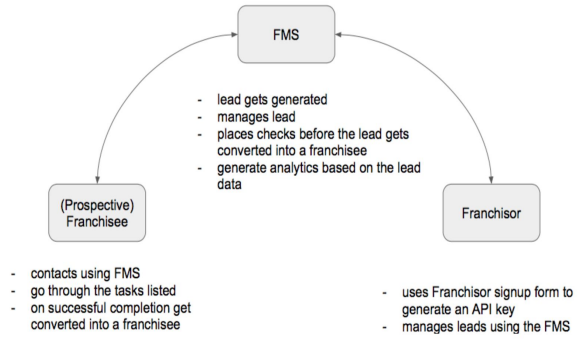

Figure 1: Overview of the Project

ii.Architecture Diagram of LeMUR:

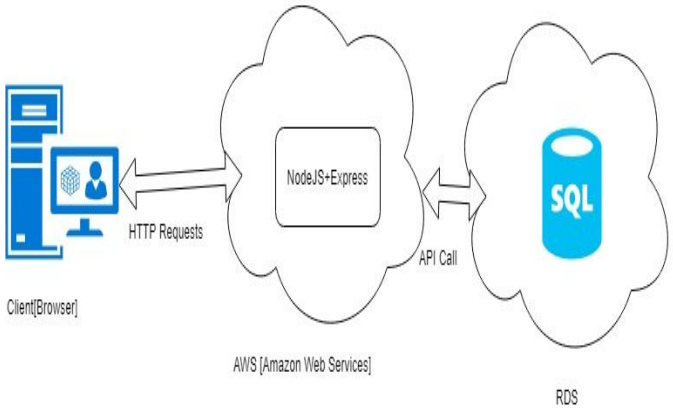

Figure 2: Architecture

iii. Schema Diagram of Database:

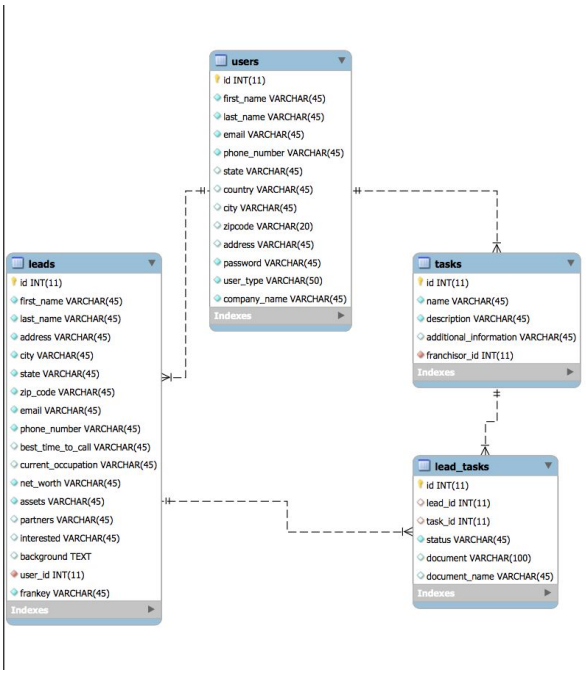

Figure 3: Database Schema

iv: Performance:

a. Using DB Connection Pooling:

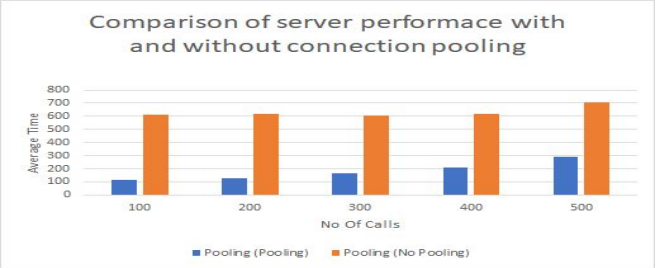

Figure 4: DB Performance Comparison w/ Pooling

b. Using DB Redis Cache:

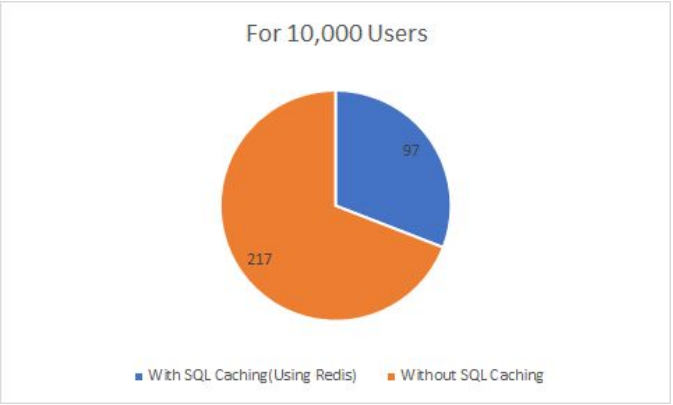

Figure 5: DB Redis Cache

IV. FUTURE ENHANCEMENTS

Our team's vision is beyond what we currently have. Here is a few things that the team could do in the future:

- Sales Module: By integrating POS system into our system
- Audit Module
- Training Module: To help the franchisees
- Marketing Module

V. CONCLUSIONS

Franchise Management System is a big market that common consumers don't really get any chance to look at in their daily lives. In real life, there are many software systems, like FMS, that only those in the industry know and are aware of the significance of its usage.

This academic term project is just a fraction of what nowadays commercial software system could do. Throughout the project, the team cooperated and learnt from each other.

Acknowledgment

We sincerely express our gratitude to Prof. Rakesh Ranjan, our instructor, to drive us as a team to deliver valuable outcome. He helped us catch the pulse of the project and allowed us to build LeMUR the way we wanted it to.

References

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[2] http://expressjs.com/
[3] https://dev.mysql.com/
[4] https://www.w3schools.com/howto/default.asp
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