



Jose Rizal University
College of Computer Studies Engineering
Computer Engineering Department

P3 - Proposing a Cloud Migration Plan

CPE C405 – EMERGING TECHNOLOGIES IN CPE

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Submitted to:

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Date Submitted:

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No 0614 2023			
 			
REPUBLIC OF THE PHILIPPINES City of San Juan METRO MANILA			
OFFICE OF THE MAYOR BUSINESS PERMIT AND LICENSE OFFICE PERMIT TO OPERATE DISPLAY IN PLAIN VIEW <small>(FAILURE TO DISPLAY IS PUNISHABLE BY FINE OF P.1000 PER ORD. NO. 81-2013)</small>			
PERMIT NO. FMZ-2023-0430	BUSINESS REG. PLATE NO. 0433	GROSS SALES 44,400.00	FEE PAID 9,696.25
DATE ISSUED January 11, 2023	DATE EXPIRES December 31, 2023	OFFICIAL RECEIPT NO. 1317092SJ	DATE PAID January 10, 2023
TAXPAYER'S NAME BRENDA SAJONAS ROSARIO			
BUSINESS NAME WEST CRAME CLINIC			
NATURE OF BUSINESS CLINICS			
ADDRESS UNIT 415 PSMBFI BLDG., SANTOLAN RD., WEST CRAME, SAN JUAN 2			
<ul style="list-style-type: none">THIS PERMIT IS NON-TRANSFERABLE AND WILL BE REVOKED ANYTIME FOR VIOLATION OF ANY EXISTING ORDINANCES, RULES AND REGULATIONS, LAWS, AND OTHER CONDITIONS SET-HEREOF.VALID ONLY AT THE BUSINESS ADDRESS INDICATED HEREIN.AREAOTHER CONDITION(S): 1 of 1 Permit(s) Subject to submit Locational, Sanitary, Fire, Cenro & Peso Certificate and Occupancy/ Building Permit within 30 days from the date of issuance, non-compliance revokes this permit.			
R-01621		Date Registered - 7/16/2018 msimon-20230111-16:53:35	
SEE REVERSE SIDE FOR FOOTNOTES			
FRANCISCO JAVIER M. ZAMORA CITY MAYOR By: Authority of the City Mayor  JULIUS H. AVENIDO BPLO Chief			

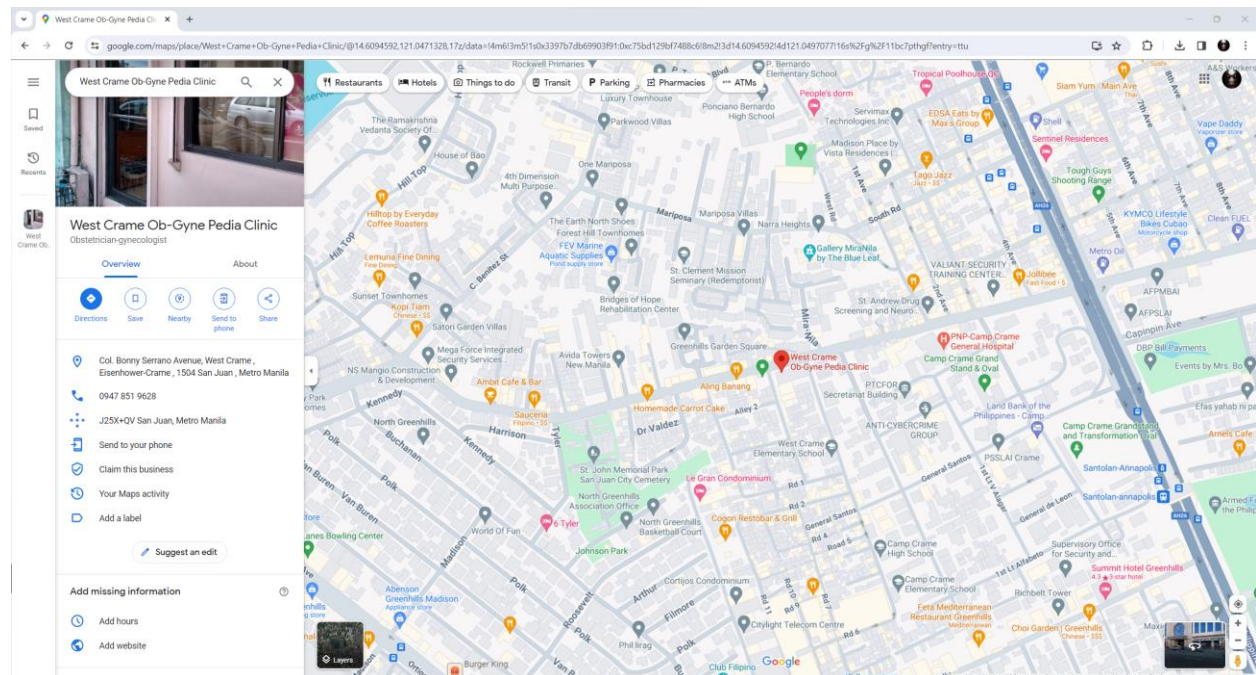
Company Background

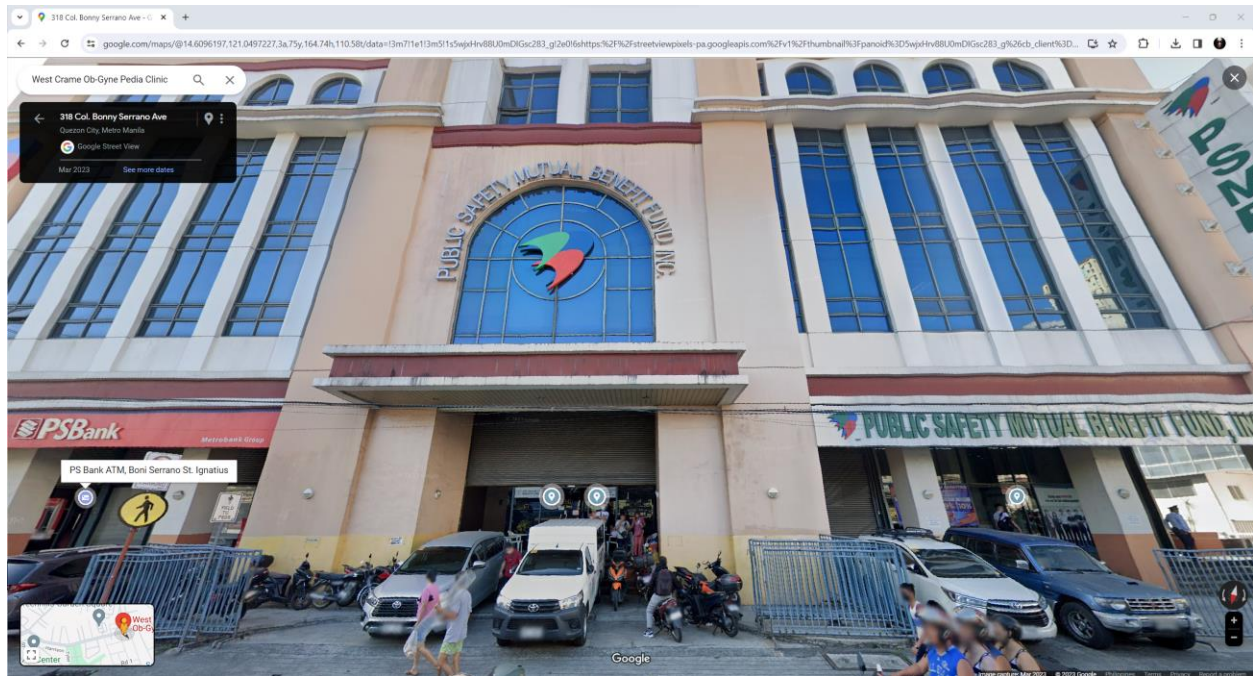
Our group partnered with a clinic business located in Col. Bonny Serrano Avenue, West Crame, Eisenhower-Crame, 1504 San Juan, Metro Manila which is the West Crame Ob-Gyne Pedia Clinic they offer a variety of services for pregnant women and children such as vaccine shots, prenatal appointment, pediatric checkups, consultations and more. The business was currently working in a walk-in patient process as well as appointments via call to their business cell phone number. Our fellow team member's parents happen to be a co-owner of this clinic. That's why we get the opportunity to have a partnership with them for this project. The clinic was registered under the owner Mrs. Brenda Sajonas Rosario, the clinic was considering embracing innovation by the digitalization of their business process involving scheduling their patient appointments, handling databases of their patient's charts and information and a platform when they already integrated a web app for their clinic.

Despite being in the field of business for years, the clinic's current on-premise infrastructure and manual processes stops them from embracing modern healthcare practices. The current system of this clinic relies on paper-based records, that is limiting their accessibility and efficiency. The appointment scheduling through phone calls was causing the clinic to experience scheduling conflicts and delays. There's also the absence of a web app portal for patients to manage or view their medical information and communicate directly with their healthcare providers.

On-premise infrastructure

Location:





Reasons for cloud migration

The clinic's decision to consider cloud migration is due to the following reasons:

- The cloud will allow the clinic to scale and manage their IT resources in the deployment of their web application, this would greatly help to meet patient demands such as scheduling, ensuring the best performance without hardware constraints.
- Cloud-based databases will greatly increase the security features of the clinic, protecting patient data from unauthorized access and data breaches. Most importantly losing the documents due to paper-based records.

- Cloud-hosted web applications and data will be accessible from anywhere with an internet connection, enabling remote work, patient access to their records, and telehealth consultations.
- Cloud-based systems can automate many tasks in the clinic, reducing manual data entry and freeing up clinical staff to focus on patient care.
- Cloud providers such as Amazon AWS offer different flexible pricing models depending on the clinic's needs, allowing the clinic to only pay for the resources it consumes.

What specific business process will be deployed in AWS

The following clinic process will be fully migrated to the cloud, this will offer a secure and accessible patient portal integrated with an appointment scheduling system. Patients can now be able to:

- View and book appointments online, reducing phone calls and overloading schedules.
- Manage appointment reminders and receive notifications.
- Access and update their personal information.
- Communicate directly with clinic staff through secure messaging or chat bots.

The clinic's current paper-based patient records will also be migrated to a cloud-based EHR system and database, this will offer:

- A secure and centralized storage of patient medical data, including demographics, diagnoses, medications, and immunizations.
- Improved accessibility for authorized personnel such as clinic staff and doctors, enabling efficient care coordination and information sharing.

Discussion type of cloud computing service

We recommend a Platform as a Service (PaaS) approach for this migration. PaaS offers pre-configured environments with all the necessary tools and services readily available. This allows the clinic staff who might have limited knowledge on handling this be able to manage and maintain the system. This will let the clinic deploy the application in days or even hours, and handles patching, updates, and backups, freeing up the clinic staff to exert a lot of time dealing with maintenance tasks. PaaS operates on a pay-as-you-go model, allowing the clinic to only pay for the resources they use. There will be no need to manually adjust servers based on traffic spikes of incoming patient inquiry of appointment schedules. PaaS automatically scales resources up or down, ensuring optimal performance without wasting money on the infrastructure.

Most importantly the need for security measures like encryption, access controls, and threat detection. This ensures patient data remains safe and compliant with regulations, even with limited IT expertise. PaaS will help the West Crame Ob-Gyne Pedia Clinic to embrace the cloud

confidently in future. It will offer quick deployment, customization freedom, cost-effectiveness, and security, all without the burden of managing complex infrastructure. This is a win-win situation for the clinic, its patients, and the future success of the clinic in the healthcare field.

Discussion of cloud deployment model

Our group has decided to propose a hybrid cloud deployment strategy. The clinic's patient portal and Electronic Health Records (EHR) system that they are planning to deploy will reside in the public cloud to be accessed by patients when they want to have an appointment with the clinic or check their information or status, this will benefit from cloud's scalability, cost-effectiveness, and global accessibility. Sensitive and confidential data such as financial records and patient charts will be stored in a private cloud environment, ensuring the maximum security and compliance with regulatory requirements. This proposed hybrid approach will balance flexibility and data protection, at the same time they can still continue having paper-based records until the clinic is still adjusting to the digitalization process.

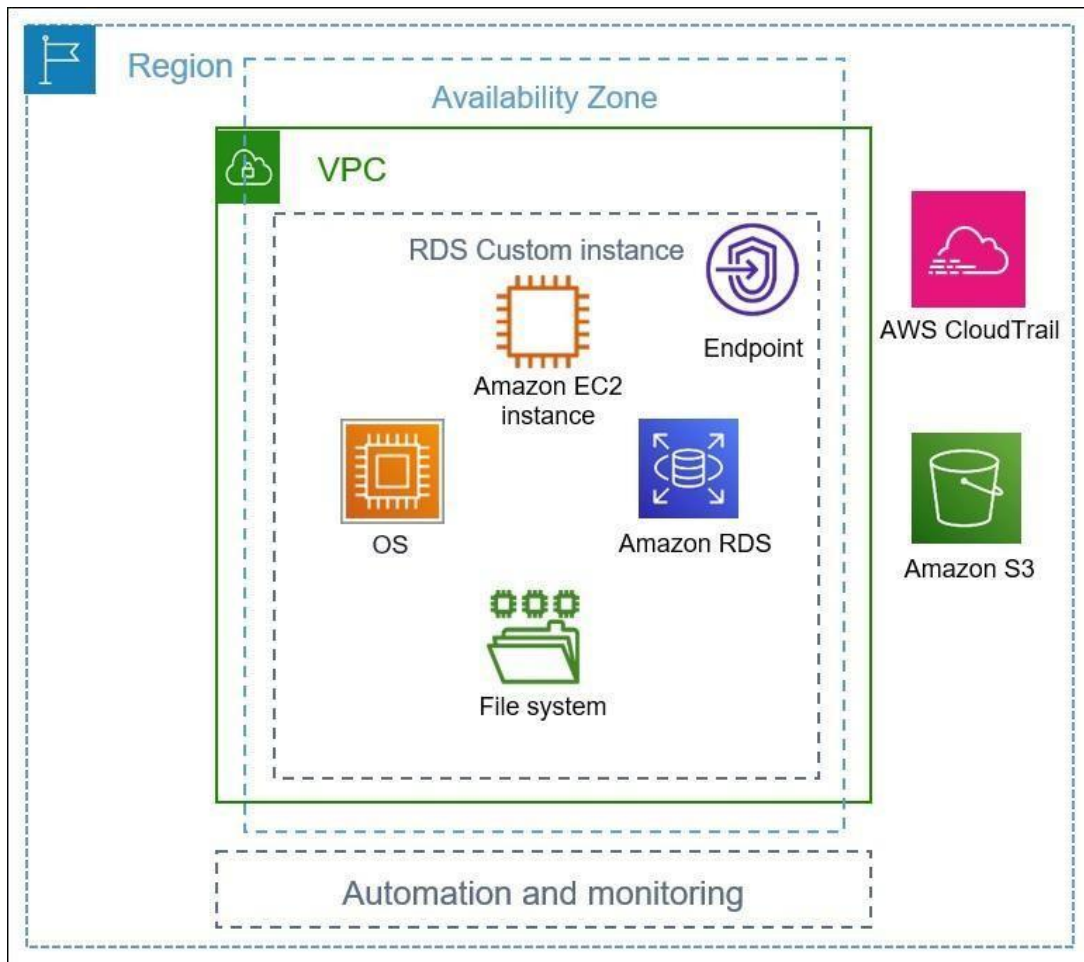
Proposed Cloud Solution

- **Discussion of services to avail.**

The cloud migration of the clinic will incorporate the following services from Amazon AWS:

- Amazon EC2: This is for the virtual servers to run the application and manage workloads.
- Amazon S3: This is to secure object storage for storing and retrieving large amounts of data, such as medical images.
- Amazon RDS: For relational database service to manage patient data securely and efficiently.
- AWS CloudTrail and CloudWatch: This is for cloud monitoring services for tracking system activity, resource utilization, and performance.

- **AWS Architectural Design**



Impact assessment cloud migration

- The cloud migration of this business will have a significant positive impact on the clinic, including:
- Patients will enjoy the convenient access to their medical records, appointment scheduling, and telehealth consultations.
- Staff productivity will increase due to automated tasks and centralized data management.
- Patient data will be protected from unauthorized access and data breaches of their information and medical charts.
- The cloud's flexible pricing model will eliminate the need for on-premises hardware and software maintenance.
- The scalable cloud infrastructure will accommodate the clinic's expanding patient base and evolving their healthcare needs.