SIDMACH TECHNOLOGIES NIGERIA LIMITED

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**INFRASTRUCTURE ARCHITECTURE FOR PHARMACEUTICAL SOCIETY OF NIGERIA**

**INTRODUCTION:**

The Pharmaceutical Society of Nigeria (PSN) is one of the largest association of healthcare professionals in Nigeria. It has requested for an expression of interest for the provision and development of an integrated system to facilitate the modernization of Nigeria's drug distribution network.

Among many features, the system is required to deliver the following:

* A comprehensive IT driven pharmaceutical industry from the point of source(local/import) to the consumers of medicines in Nigeria
* Enable track and trace of medicines and allied products in the supply chain.
* Harness the information of registered practitioners and products on a single platform.
* Create access for the consumer of health for information on products and their feedbacks.
* Generate data for the use of the pharma sector.

The Infrastructure to be provided for this solution will help the organization manage the distribution of medicine and allied products from the point of source to consumers in accordance to the new drug distribution guidelines, manage data on registered pharmacists, distributors and pharmaceutical premises whilst liaising with the National Agency for Food and Drug Administration (NAFDAC) and the Pharmaceutical Council of Nigeria (PCN) to ensure the integrity of data within the system.

**INFRASTRUCTURE OVERVIEW:**

To support the solution, a robust, resilient, scalable and state-of-the-arts infrastructure that is cloud based is herewith proposed. This will among many ensure that all key deliverables are achieved; as well as ensure greater business and digital transformations that come with a cloud platform. Key benefits worthy of note with a cloud platform include:

1. **Cost Savings:** If you are worried about the price tag that would come with making the switch over to cloud computing, you aren’t alone; 20 percent of organizations are concerned about the initial cost of implementing a cloud-based solution. But those who are attempting to weigh the advantages and disadvantages of using the cloud need to consider more factors than just initial price; they need to consider Returns on investment (ROI). Once you're on the cloud, easy access to your company’s data will save time and money. And, for those who are worried that they’ll end up paying for features that they neither need nor want, our cloud computing services are pay-as-you-go. This means that if you don’t take advantage of what our cloud offers, then at least you won’t have to be dropping money on it. The pay-as-you-go system also applies to the data storage space needed to service your applications, which means that you’ll get exactly as much space as you need, and not be charged for any space that you don’t. Taken together, these factors result in lower costs and higher returns.
2. **Ability to Scale on Demand:** It can be hard to predict how your business will grow, or when you will require extra resources for short term 'bursts' of traffic or transaction volume. Increased growth or other demands often demands running applications with high load, or additional applications that most traditional hosting models cannot handle. Our cloud platform offers a big advantage to enable you scale alongside your business. One way our cloud does this is by loading your applications as a cluster that allocates a web application to a specific set of processes. The result is that all of your applications are not forced to run off a single server and you will thus never run out of server capacity. As a bonus, our cloud can even be managed to auto scale based on load or schedule.
3. **Flexibility:** In this quickly evolving technology sector you need a hosting solution that can quickly evolve as your needs change. Our cloud is simple to adapt and offers a host of application building blocks and services that will allow you to customize the cloud as needed.
4. **Automatic software updates:** For those who have a lot to get done, there isn’t anything more irritating than having to wait for system update to be installed. Our Cloud-based applications automatically refresh and update themselves, instead of forcing an IT department to perform a manual organization-wide update. This saves valuable IT staff time and money spent on outside IT consultation.
5. **Security:** One major hang up that many organizations have when it comes to adopting a cloud computing solution is the issue of security. After all, when files, programs, and other data aren’t kept securely on site, how can you know that they are being protected? If you can remote access your data, then what’s stopping some cybercriminals from doing the same thing? Our Cloud Security team’s full-time job is to carefully monitor security, which is significantly more efficient than a conventional in-house system, where an organization must divide its efforts between a myriad of IT concerns, with security being only one of them. Aside from Data encryption, our rich Machine Learning Security Monitoring Platform ensured no threat exiting or being anticipated gets close to your data.

**INFRASTRUCTURE ARCHITECTURE:**

Below is a schematic of the proposed infrastructure:



The Architecture includes four App Services hosting the following: Public Portal for external User access, Core Management Portal for all administrative tasks, Reporting Service for real time reporting of all transactions on the entire system as well as an API App service to connect to NAFDAC/PCN systems as well as for mobile App Services.

The Search service will be used as a search index store to provide a standard search user experience for the solution.

Cache: This is a Redis cache service that will provide a cache storage to improve the performance of the other App Services. It will serve as a data cache.

Email Service: This is an email service that will provide several accounts for communication from both business operations and notifications from all other App Services.

At the backend, will be an SQL Database Service in an elastic pool. This will ensure scale out and scale up of resources when the workloads fluctuate. Storage Accounts will be used store all resources as well as system event and audit logs, media files etc.

In a nutshell, the system is designed to automatically ensure that resources are highly available and accessible 24/7.

Below is a breakdown of Infrastructure resources specifications as well as accompanying annual costs:

