Information Technology Architectures (IT454-1701B-02)

Consultant’s Analysis Report on Enterprise System

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Section 1: Project Outline

The Veterans Health Administration (VHA) is a component of the Department of Veterans Affairs that provides healthcare for military veterans throughout the United States. Recently, VHA has begun constructing a Community-Based Outpatient Clinic (CBOC) in Springfield, MO where there is a high concentration of military veterans. THE CBOC will not only help decrease the backlog of veterans commuting on average of 2 hours to receive medical attention in either St. Louis, Kansas City or Columbia Veterans Hospitals but will help ease the workload of these hospitals.

This CBOC will need an IT infrastructure designed to support approximately 80 employees, secure sensitive information, including patient and employee information, and hiring of IT staff to monitor and maintain this system. This infrastructure also needs to be able to effectively send and receive data on a secure network to its parent VA hospital which is located Fayetteville, Arkansas. A large portion of our restorative focuses offer extra medicinal as well as surgical claim to fame administrations including audiology along with discourse pathology, dermatology, dental, geriatrics, neurology, oncology, podiatry, prosthetics, urology, and vision mind. Some therapeutic focuses likewise offer propelled administrations, for example, organ transplants and plastic surgery.

The completion of the CBOC has a timeline of one year but official start date for construction will not begin until 6 months from now. This 6 month window will be the time span for the IT department to develop an analysis report on the design and implementation of the distributed system that will support the mission of the VHA. Budget for this infrastructure project is estimated at $500,000. This budget covers:

* Purchasing of equipment including cable
* hiring third party contractors to complete certain tasks
* Installation and configuration
* Hiring of technical staff

**System Requirements**

 For a successful system design and implementation, a clear system design analysis needs to be done to ensure an effective, efficient and a timely output. The following system analysis of the system requirements is key:

• The Scope of the requirements is drawn based on the hospital's requirements and goals.

• Identification of the stakeholder such as customers who in this case are patients, this enables the analyst to draw a guideline on the requirements.

• Gathering of requirements, after identifying the stakeholder's requirement elicit follows this is based on the nature and scope of the program solution there can be more than one stakeholder. Here researches, survey and interactions occur.

• Requirement analysis, it involves a structured data analysis to help determine models. Requirements animation is used, critiquing that is knowledge based, and case-based reasoning and automated reasoning.

• Software Requirement Specification involves putting together data inform of a document that is known as a software specification document which serves as a blue print for development and design teams to start building the solution on.

• Management of software Requirements, being the final process in requirement analysis it involves the validation of all elements of the specification documents. Error correction is done and adjustments were done.

**Functions of the System**

Its major function is to develop and maintain an up to date state of discharge and admission of military veteran’s patient. The system will achieve the following objectives;

• Computerizing all details about the patients and the hospital.

• Scheduling patient and doctor appointments to make it convenient for both,

• Scheduling services for specialized doctors and emergencies so as to utilize all facilities of the hospital effectively and efficiently.

• Reduce the stock status when the medical store issues medicines and vice versa.

• Handle the test reports of patients.

• Automatically update the inventory whenever a transaction is made.

• Keep patient’s information up to date and store them for historical use.

**Delivery Method**

The delivery method of the system will be a client software. This method will allow a distributed system enterprise which will be vital in breaking up the workload for that particular network. This will also improve computer and network security. Another advantage is that when a work node quits operating at normal standards, the employee is able to switch stations without loss of information. A Web-based review of Veterans Health Administration clinical pioneers. We compressed office attributes utilizing clear insights. Multivariate strategic relapse surveyed relationship between hierarchical qualities and counsel accessibility.

**Target Users**

The primary targeted users of this system will be system administrators and staff. Staff Secondary will be patients needing access to their medical records including appointments.

Section 2: Architecture Selection

The following information is about the three system architectures of the distributed system. The three system architectures I will be discussing is the client-server architecture, service-oriented architecture as well as the Cloud architecture. A distributed system is a network that comprises of independent PCs that are associated utilizing a distribution middleware. They help in sharing distinctive assets and capacities to give clients an isolated as well as the coordinated, consistent system. It is a collection of PCs that demonstration, work, and show up as one huge PC. There are a few circulated registering ventures on the Internet that help takes a shot at complex issues by sharing the preparing force of a vast number of various people groups PCs. To take an interest and help these projects, regularly you just need to download a little program that runs at whatever point your PC is not being utilized (Yadin, 2016).

The client-server architecture is the important architecture of the distributed system. It breaks the system into the subsystem. It is best suited for the veteran health administration. The client/server engineering necessarily diminished system movement by giving a question reaction as opposed to aggregate record exchange. It permits multi-client refreshing through a GUI front end to a shared database. Remote Procedure Calls (RPCs) or standard question dialect (SQL) articulations are ordinarily used to impart between the customer and server (Microsoft, 2017).

 A service-oriented architecture is an accumulation of administrations. These policies speak with each other. The correspondence can include necessary information passing, or it could include at least two departments organizing some movement. A few method for associating policies with each other is required. The Layered Architecture design advances the idea of partition of concerns where the code of related duties figured into layers. It is absolutely a legitimate plan however it can consolidate with solid outline examples, for instance, the N-level design to convey very adaptable and amazing disseminated venture applications (Microsoft, 2017).

The primary difference is centralization. Into the traditional client–server model, the server is a centralized framework that serves numerous clients. The greater part of the registering power lives on a real server that connected to terminals (customers). In an administration situated engineering, parts are more decentralized. Parts are more equivalent as in one is not subordinate to the next, for instance, the customer and server can swap parts keeping in mind the end goal to accomplish a target. Segments can work freely yet are equipped for collaborating with each other keeping in mind the ultimate goal to achieve an aim.

 Another distinction is coupling. In the traditional client–server show, the customer is regularly firmly coupled to the server. In an administration arranged design, a part uncovered a policy so that the government can be found and conjured. The part revealed the system in a way that is autonomous of its usage (using an interface like WSDL or WADL). Different segments that comprehend the interface can summon the management through the interface without being firmly coupled to its usage. A designer can assemble an application which utilizes at least one policies without thinking about their basic usage, for instance, a Java application can use an administration actualized in C++ as well as another management executed in Ruby.

 The Cloud computing architecture contained two sections the front-end and the back-end which associated with the web. The Front-end speaks to the PC that you as a customer sees (Wilder, 2012). This site obliges you to get to the distributed computing framework. Obtaining entrance can be straightforward as utilizing a web program or more perplexing by using a one of a kind interface programming, which gives you a chance to get to the cloud. The cloud computing hardware architecture is storing of information along with applications on remote servers as well as getting to them using the web instead of sparing or introducing them on your own or office PC (Wilder, 2012). With distributed computing, all our stuff like applications, documents, recordings, music, podcast as well as eBooks can be put away in the infinite space on the World Wide Web, rather than the restricted area of PC hard drives (Wilder, 2012).

 The client-server architecture is appropriate for the project of veteran health administration. The client-server framework envelops various territories both in systems administration and database administration because of its auxiliary functionalities. It is fundamental to realize that the appearance of the innovation is an achievement in the IT world and furthermore in the business community because without the utilization of this change work process would be hard to execute and may take longer time (Motiwalla, 2008).

**Analysis of Client-Server Architecture**

 Vista is based on a customer server design that ties together workstations and PCs with broadly commanded and privately adjusted programming got to through a graphical UI (GUI) at VHA offices. One part of Vista that has served the Quality Enhancement Research Initiative (QUERI) well is its capacity to consolidate, inside the national Vista programming suite, privately created programming devices to test and gather one of a kind information. For instance, the Spinal Cord Injury and Disorders (SCI&D) QUERI group enlarged the nearby Vista programming suite at two offices to gather data particular to flu inoculation of patients with SCI.

**Conclusion**

 It is very true that popularity of intranet programming and the web posture dangers towards common client/server framework since intranet programming have more points of interest when contrasted with shared or customer/server designs. It takes the most favorable position of systems administration innovation in the business world, and because it empowers us to make full utilization of remote and web innovation in the meantime, it is the most adaptable most secure and gives more protection when contrasted with offered by current client/server framework. Therefore it is the most popular decision among many organizations. Nonetheless, it is additionally essential to keep in thought that despite the fact that intranet is the most prominent and utilized as well as acknowledged around the world, there are still parts of the framework or particular organization which needs to use common customer server framework (Motiwalla, 2008).

Section 3: Resources and Timeline.

TBD

Section 4: Security

TBD

Section 5: Final Analysis and Recommendations

TBD

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