THE ROAD TOWARDS BIG DATA INFRASTRUCTURE IN THE HEALTH CARE SECTOR: THE CASE OF NAMIBIA

Abstract

- Healthcare data in developing countries are not fully used to support and improve healthcare outcomes due to fragmented Healthcare Information Systems (HISs).
- The paper studies the Namibian healthcare landscape, key functions, information systems and the challenges they face. Namibia has a dual healthcare system with a public healthcare sector that operates in parallel with privately funded healthcare provision.
- The data and information being collected or closely relevant to the Namibia HIS are grouped into three main categories collected, storage and managed currently in various HIS that are fragmented and disintegrated. Hence, there is need for an integrated HIS.
- We look into two possible approaches, and related reference architecture with their challenges. The paper proposes a third approach to improve the Lambda architecture limitations using capabilities and concepts of service oriented architecture and virtualization

Existing system

- concerns, such as health-financing reforms and effective analysis of healthcare-related information. Health-care information provided by the health information systems is pivotal to healthcare, in providing the right care to the right person at the right time.
- Typically, in developing countries such as Namibia, health information is not utilized to its full potential to support effective and efficient care due to fragmented information creation and storage. Health Information Systems (HIS) are typically spread, within hospitals, physician practices, laboratories, or pharmacies.

Disadvantages

- health information is not utilized to its full potential to support effective and efficient care due to fragmented information creation and storage. Health Information Systems (HIS) are typically spread, within hospitals, physician practices, laboratories, or pharmacies.
- Changes in medical insurance coverage, reliance on multiple providers, and increases in specialty care

Proposed system

- health information is not utilized to its full potential to support effective and efficient care due to fragmented information creation and storage. Health Information Systems (HIS) are typically spread, within hospitals, physician practices, laboratories, or pharmacies. Changes in medical insurance coverage, reliance on multiple providers, and increases in specialty care.
- paper discusses the HIS in Namibia and the challenges it poses to the practitioners. First, we explore possible solutions to address the challenges facing HIS in Namibia

Advantages

- The absence of integrated HIS and HIE, we recommend the adoption of Big Data approach as a possible third option to address the big data challenges in terms of increased volume, velocity, higher variety as well as increased veracity and lack of value generated from healthcare data.
- The challenges of HIS integration emanate from both social and technical factors surrounding the integration processes. It is argued that it is more so in developing countries due to contextual particularities related to politics, institutional conditions, high resource constraints.

Hardware Requirements

- Processor :Intel Pentium IV 1GHz
- RAM :256MB (Min)
- Hard Drive :5GB free space
- Monitor :1024 * 768, High Color inch
- Mouse :Scroll Mouse(Logitech)
- Keyboard :104 keys

Software requirements

- OS : Windows XP/7/8
- Front End : Visual Studio 2010/ netbeans 7.1
- Back End : SQL Server 2005/ heidisql 3.2
- Browser : Any Web Browser

conclusion

- This paper reviewed the Namibian healthcare landscape, highlighted the challenges and proposed a Big Data Reference Infrastructure Architecture. Our solution deconstructs the Lambda architecture using service-orientation and virtualisation concepts. This proposed architecture eliminates the two layers and introduce services insresource allocation and data access is based on the needs of the data consumers and data providers.
- The proposed approach addresses elimination of redundancy and synchronization challenges using service instances while virtualization address resource control and data access. In the future, we wish to implement the key components (dispatcher, orchestrator, storage engine, etc.) discussed in this paper.tances while the

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