Section E3

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Message Brokering Framework for the Health Care Service Application Interoperability

E.A.R.S. Perera*
Department of Computer Science, University of Sri Jayewardenepura
Gangodawila, Nugegoda, Sri Lanka

The proper management and delivery of healthcare services is an information demanding effort. The efficacy of health care operations is greatly affected by the level of automation of information management Systems. Automation is defined as the use of control systems and information technologies to minimize the human interference in the production of goods and services. In the past two decades, healthcare institutions and hospitals in particular, have begun to automate aspects of their information management systems. Such efforts have been geared towards reducing paper-based data processing, improving cash flow, and also supporting the decision making process. With the rapid development of information technology in the health care industry, local health care institutes and centers have started to use different kind of health care applications in order to do perform day to day operations and transactions. Often these applications have been developed by different vendors or in house groups, with each product or system having highly specific information formats and built on different kinds of technology platforms, despite the fact that the Ministry of Health has published "National e-Health Guidelines and Standards" documentation, aimed at ensuring that future ICT adaptations in the healthcare sector conform to a set of uniform guidelines and standards.

Today in most private hospitals as well as public hospitals they do have automated health care systems and they record their patients' medical information in their local databases. But these systems are not interconnected in order to exchange health care information. Health care information of an individual should not be limited only to a particular institute. Integrating the current health care systems is a huge challenge and it seems to be impossible because these systems are built on different technology platforms and use heterogeneous data formats. And also replacing these legacy systems is an expensive task. Therefore, a solution to overcome this problem is needed.

Amodel framework was developedto remedy interoperability issues and support the exchange of information between systems. A message brokering framework was developed with the help of the HL7 messaging standard. This framework could be installed along with the legacy systems in the local domain in order to transfer health care information in the form of HL7 messages to a centralized data storage or a HL7 server.

The prototype was implemented only to generate ADT (admission, discharge and transfer) messages since it's the most widely used message type. The implemented framework was tested with the HHIMS which is an automated health care System implemented by ICTA. Interconnecting these legacy systems with the centralized databases through the message brokering framework could provide better health care service to the people since every piece of information of an individual is very important when it comes to the medication point of view.