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Integracija in interoperabilnost sistemov e-Zdravja z odprtokodnim pristopom ter primer teleradiološkega sistema

Integration and Interoperability of e-Health Systems with the Open Source Approach and Telradiology System Example

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Integration and interoperability

From the practical point of view the term E-health is often confused with the simple digitalization of documents and the partial data. In fact, in the last years we witnessed a very fast growth of stand-alone systems for the management of partial E-health information. The result of this approach is having "islands" of information that cannot share data and communicate efficiently. This fragmented approach is the first and the simplest step of the process of moving to E-health. The more complex steps are related to the meaning of "sharing". The information should be accessible not only inside those islands, but also from all systems around them. This is the critical challenge for health in our time and also for the E-health story in Europe. For this reason the most important and also the most common terms in today E-health technology are: integration and interoperability.

Integration means to have the capabilities to communicate and share data with other systems, typically using standard protocols and interfaces. Interoperability is a wider term than integration and extends its meaning. It means, for the systems, not only to communicate but to cooperate together in the most profitable way.

Open source approach

In the enlistment of possible solutions for fostering the concept of integration and interoperability, the Open Source approach has a great role.

The main advantage that the OS applications bring to the hospitals or healthcare institutions is that those organizations don't become prisoners of the vendors. The implementation of closed information systems into their daily routine would

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impose limits to the customization, assistance and evolution of the systems! Open Source guarantees the freedom to decide the best partner for services on a system. The opportunity to have access to the source, guarantees that the health organizations can survive the collapse of their vendor. They are no longer at the mercy of unfixed bugs. And if the vendor's support fees become inflated, they can buy support from elsewhere.

There are several other advantages (cost, wide support, flexibility etc.) that are beyond the scope of this abstract. Very good analysis of Open source in health care is presented in a reference,[1] where also actual solutions with some concrete software descriptions are suggested.

Open three (O3) consortium

O3 Consortium is a Worldwide project that aims to push a new vision of IT in the Healthcare, fostering the adoption of Open Source Technologies.

O3 Consortium deals with the three domains of the tomorrow's e-health, in the frame of the European e-health programs: hospital, territory and home-care / mobile-care /ambient assisted living (AAL).

The Open Source license is not the unique feature that characterizes the products of O3 Consortium. For a complete interoperation and integration of O3 products it is necessary to extend the meaning of "Open". The Open Approach followed by O3 Consortium is intended in its widest meaning. Open Source off course, but even Open Standards and Open Interfaces. Furthermore O3 has chosen to adhere at the new worldwide interoperability initiative IHE (Integrating the Healthcare Enterprises).[2]

There are two main products of O3Consortium. The first is the O3-DPACS (Picture archiving and communication system) which is a Java J2EE (Java 2 Enterprise Edition) application (Figure 1). It has been realized as a modular collection of services, as summarized in Figure 1. As communication protocols, DICOM is used mainly for clinical data, signals and images and HL7 (Health Level 7) for administrative data.

The second main product is the O3-RWS which is a Reporting Workstation that provides the functionalities of an image viewer with many additional services.

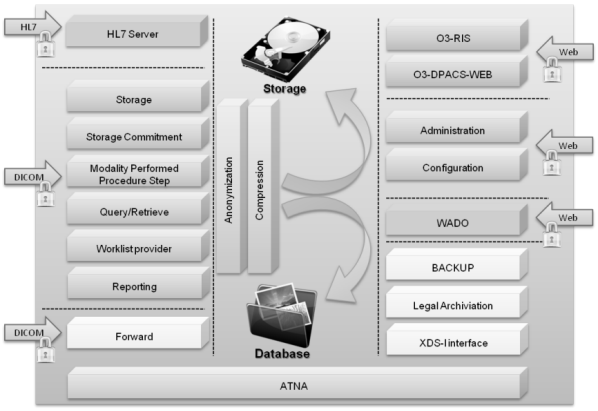

Figure 1 The modular structure of O3-DPACS.

O3 products are in production in 5 hospitals and new installations are planned in 2010. Especially for the PACS application the Open Source approach proved to be very good and effective solution for the hospital.

Literature

1. Goulde M, Brown E: Open Source Software: A Primer for Healthcare Leaders. California 2006: California Healthcare Foundation. http://www.chcf.org/documents/ihealth/OpenSourcePrimer.pdf.
2. Integrating the Healthcare Enterprise web site. http://www.ihe.net.

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