



Patient and medical information system



CertiCon designed the intelligent patient information system for online collection and evaluation of data from medical beds.

In the middle of 2010, LINET, one of our partners, called for an innovation in its medical services and started the PaLIS project. LINET is one of the five largest manufacturers of hospital beds in the world and a global leader in innovative solutions for medical and nursing care.

The challenge

The purpose of the project was to extend the LINET hospital bed functionality with online monitoring ability. Medical personnel would thus be allowed to observe patients 24/7, which dramatically raises the safety of patients. The system had to also provide intelligent decision making during online patient data analysis.

The task of CERTICON was to design the information system, integrated with the current bed electronic control unit. An additional feature of the system was the ability to archive historical data gathered from medical beds of all partner hospitals for further statistical evaluation and other types of evidence use.

Solution

CERTICON was asked to apply its rich know-how in medical systems development to design the solution for the information system.

The system was designed as a distributed modular solution consisting of two modules. Several architectural principles were pointed out, which influenced the whole solution with respect to client's strategy:

Scalability of solution – the system was expected to continually expand its features based on client requirements

Open standards – the system had to support technology standards for simple upgrading

Robustness – the system had to be deployed in hybrid environments

Ease of use – the system had to be usable for non-IT medical personnel

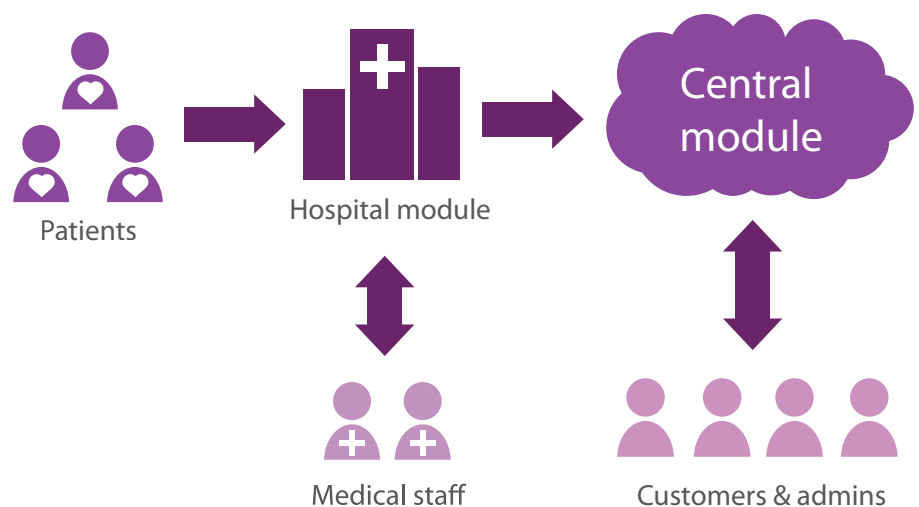


Figure 1: High-level architectural concept of PaLIS

“Cooperation with Certicon on PaLIS project is very efficient and brings best practices and solutions from IT service industry to the health service according to customer’s wishes.”

Jan Purkrábek, Technical director and strategic development manager

PaLIS was designed as a flexible service-oriented system allowing the client to add further features without redesigning the architecture. This was achieved by defining the interface of loosely coupled SOA services of both modules and by choosing Web-Services technology as the SOA backbone. The solution was supported by open standards including XML, WSDL and SOAP.

For the purposes of intelligent decision making, a knowledge base consisting of expert medical rules for system alerting was designed. These rules were constantly evaluated online during data collection from medical beds.

Data collected from medical beds is securely transferred from distributed system modules in partner hospitals and are archived within the central module. This module provides another SOA interface for the client web-portal and maintenance purposes as well as the data warehouse for collected data. A central module was designed to be suitable for the CLOUD computing appliance.

Results & Benefits

In fall 2010, CertiCon delivered a complex architecture design to the client, which was used as a blueprint for further development phases. At the beginning of

2011, the project was successfully implemented under the governance of CertiCon enterprise architects.

Our customer started to recognize the main benefits of the solution right after planning new system features, principally due to our service oriented design and modular architecture which allows the rapid extension and re-usability of current features. Finally, it resulted in client cost savings during all maintenance phases. This project was financed by Ministry of Trade in the Czech Republic ■

About CERTICON

For more than 14 years, CERTICON has been improving the competitiveness of our clients around the world. CERTICON’s solutions comprise the full spectrum of services and solutions in software development and quality-assurance verification testing. Our experience in the fields of medical and mission-critical applications and high-tech industrial applications enables us to harness the best practices and solutions for the clients. CERTICON designs, develops, rapid-prototypes and deploys sophisticated software solutions. Our projects and solutions cross medical and industrial domains by leveraging state-of-the-art methodologies and technologies

Contact us

CERTICON a.s.

Václavská 12/316
120 00 Prague 2, Czech Republic

Tel: +420 224 904 200
Fax: +420 224 904 150
Web: www.certiconglobal.com

HSP Inc.

3717 W. Sherbrooke Drive
Mequon, WI 53092, USA

Web: www.hspinternational.com

Corigin Tech, Inc.

11448 300th Avenue,
Princeton, MN 55371, USA

Web: www.corigintech.com