

First implementation of IHE-ITI EUA (Enterprise user authentication) and PSA (Patient synchronized application) in Japan - Evaluation of EUA and PSA functionality -

Yutaka Ando¹, Koji Uemura¹, Masami Mukai¹, Shinichiro Sato¹, Hirohiko Tsujii²,
Nobuhiko Tsukamoto³, Takashi Nakashima⁴, Noriaki Daito⁵

¹ Medical Informatics, National Institute of Radiological Sciences, Chiba, Japan,

² Research Center for Charged Particle, National Institute of Radiological Sciences,

³ Dokkyo University School of Medicine, ⁴ Hitachi Medical corp., ⁵ TechMatrix Corp.

Corresponding author: Yutaka Ando, 4-9-1 Anagawa, Inage-ku, Chiba 263-8555 Japan, ando_y@nirs.go.jp

IHE ITI defined the 9 integration profiles. We planed to modify our PACS and Schedule management system for the CT, EUA and PSA integration profiles. We need to check the existing system carefully again prior to the implementation of the EUA and PSA. We define the programming interface of the web client and stand-alone program. In future, we will make disclosure of the programming interfaces and binary program. We are thinking that these IHE ITI functions are useful and will be widely implemented in hospitals.

INTRODUCTION

We planed to study the effectiveness and availability of IHE(1)(2) IT-Infrastructure profiles in the Japanese environment. First, we adopt the integration profiles (EUA: Enterprise user authentication, PSA: Patient synchronized application). The final aim is to evaluate the availability of the integration profiles in Japanese environment.

We evaluate the integration profiles. And we expand the function of the EUA and PSA, because one clinical unit includes multiple personal computers in the outpatient clinic and the ward. We defined the context area for the context manager defined by the HL7 CCOW (Clinical Context Management Specification)(3). We developed the middle-ware to realize the function of the EUA and PSA.

METHODS AND RESULTS

We use this middle-ware to communicate the context area manager each other. We analyzed the flow of the applications. We implemented the function of the EUA and PSA into the existing applications.

We evaluate the functionality of the EUA and PSA by using the each application. We find that the user interface is very important and if we build the application incompletely, the function of the EUA

and PSA may disturb the application by excess dialogs.

The ITI EUA and PSA were implemented into two systems (a PACS viewer and a schedule management system). The PACS viewer is based on the java client program. The ITI functions were merged into an application. The schedule management system is based on a php script and apache server. The EUA and PSA function were realized in an applet method.

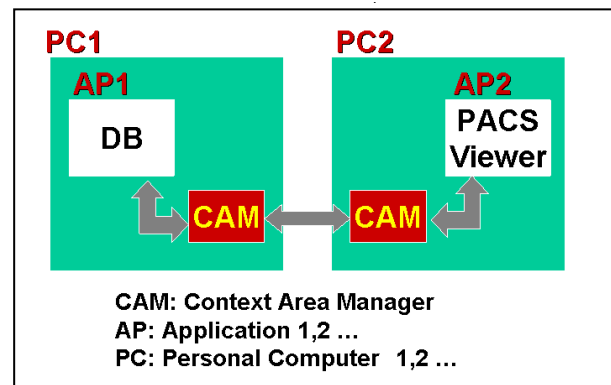


Figure 1. Concept of Context area manager

DISCUSSION

The IHE-ITI EUA and PSA were defined by the HL7 CCOW standard. The function of the EUA and PSA is limited to only one workstation. In our hospital, the clinical unit consists of the two personal computers. We expand the CCOW standard by the definition of the context area concept. The context managers communicate each other and transmit the information about context subject according the user ID and the patient ID (Figure 1). The IHE ITI PSA can indicate the patient ID but cannot indicate the study nor series of images. When we use the PSA function for PACS viewers, we need synchronize the series and image of the image examination. We think that the PSA function should be improved to point the images.

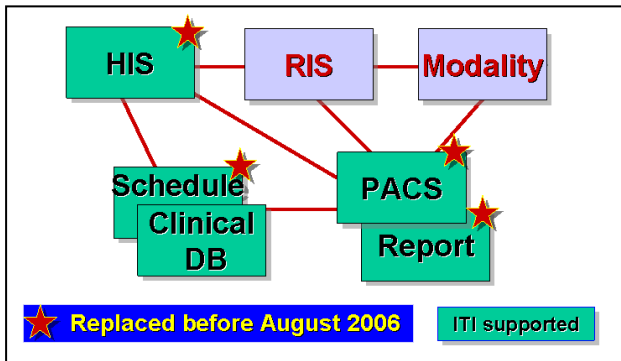


Figure 2. The configuration of the information systems in the NIRS hospital

There are many information systems in our hospital. We could not upgrade all systems on one occasion. So we implemented the ITI EUA and PSA function step by step. Figure 2 shows the configuration of our information systems. Some systems are planned to be replaced until August 2006. When a system will be changed, the EUA and PSA function will be implemented.

CONCLUSIONS

Our implementation is the first experience of the IHE-ITI EUA and PSA in Japan. We learned that the function of the EUA, PSA is essential for the hospital information system and is inevitable. In future, to promote these IHE integration profile, we have to encourage the hospital staff and the patient to use the IHE ITI integration profiles. We are planning to distribute this library in free-of-charge to the hospitals, if they want to use.

References

- 1 IHE Integrating the Healthcare Enterprise, <http://www.ihe.net/>
- 2 IHE-Japan website. <http://www.ihe-j.org/>
- 3 Clinical Context Management Specification Version 1.4, The Health Level Seven, ANSI/CMS V1.4-2002