Chapter 7

Technical Perspective for the E–Health Care Management of Adaptive Collaboration Based on Authentication Roaming Between Different Certificate Authorities

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ABSTRACT

The purpose of our study is to incorporate the authentication roaming technology with existing social infrastructures from the perspective of users instead of that of service providers. By conducting experiments in the Business to Consumer (B to C) environment, our research demonstrated and confirmed the effectiveness of the authentication roaming technology to realize a safe and convenient network society. This technology contributes to the construction of a citizen-centric, reassuring system especially for community medicine and healthcare by proposing a cooperation system for the medical information services based on the XML Web Services technology. Our aims to enable patients and residents to access a variety of essential information for maintaining good health and preventing diseases and enable them to make an educated decision regarding the treatment they may receive in case of illness.

INTRODUCTION

It is essential to reinforce citizens' health management and disease prevention as well as to reduce increasing public share of medical costs, as Japan is well on the way to an aging society. In order to achieve them, it is essential to improve the quality of the health services as unifying force (hubs) to utilize a variety of functions such as authentication,

security, procedures, and procurements. As has been the pattern, individual medical institutions including clinics and hospitals had independently responded to the medical needs of citizens. Currently, there are various services available that utilize the Internet. Additionally, more and more services are newly created to meet users' diverse needs by incorporating existing services and social infrastructures. Nonetheless, many of the existing services are often provided with specifications unique to each service provider, making it difficult or even impossible to integrate them with existing social infrastructures. Therefore, it is essential to develop a scheme that incorporates different services and infrastructures without boundaries of specifications.

Traditionally, many services were provided by locally connecting computers. However, with the rapid and widespread diffusion of the Internet, the demand for integration remotely or globally has increased. Consequently, there emerges an increasing need for the development of technologies that incorporate different systems. However, implementing the same technology used for connecting computers locally into a system connecting computers globally is costly and time consuming.

The social infrastructure is a wide concept, and it includes so many various entities. Today, not only information and communications technologies (ICT) including broadband networks and mobile phones but also the logistics and sales systems are prevailed as social infrastructures. Nonetheless, there are still few models that transcend the difference of business types and industries, and connect them altogether to provide a new service.

For the demonstration experiment, we selected the Business to Consumer (B to C) model. The model we built aims to utilize different social infrastructures, and coordinates with other services regardless of their business types and industries to offer convenient and effective services for users. We developed the Web Service that provides user-centric services as well as the authentica-

tion system essential for coordinating different systems. However, the current condition with advancing medical technology, deficit operation of medical institutions', and lack of doctors makes it nearly impossible to respond a variety of medical and healthcare needs of people. This issue is especially serious in countryside areas hence optimization of management resources for healthcare and medical services is very much in need. As a strategic solution for this issue, we propose creation of a cooperation network among municipalities, hospitals and clinics, nutrition counseling centers, corporations, and university research centers.

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