THE SUMMARY OF Ph. D. DISSERTATION No. 1

Major		SURNAME, Firstname
Information, Communication and Media Technologies		UDA, Ryuya

Title

Study on Authentication for Mobile Agents

Abstract

Nowadays, a mobile agent which is executable program and can move from computer to computer over networks becomes the center of public attention. However, a malicious agent can sometimes become a computer virus, and a weak agent can be sometimes attacked from a computer which it works on. Since it is difficult to put mobile agent system to practical use, security technology holds the key to the success of the service with mobile agents.

Mobile agent authentication methods which disable attacking from platforms and enable multi-hopping are proposed in this paper.

In the first chapter, the objective, the outline and the composition of this paper are described.

In the second chapter, background arts of this study are described. They are security technology which includes cryptosystems, authentication and digital signature, and agent technology. This study is clearly placed in agent authentication technology by background arts and related works.

In the third chapter, a method for secure contents distribution using mobile agents which wrap plain contents is proposed. An agent authenticates a contents player and itself, transferring information to a server of a digital rights center. This authentication enables copyrights of contents to be protected and also enables contents to be changed for secondhand use.

In the fourth chapter, a secure authentication protocol using multi-hash for mobile agents is proposed. This protocol solves authentication problems of multi-hopping agent. An example of this protocol for one-stop procedures of administration is implemented, and calculating performance for authentication is measured.

In the fifth chapter, the conclusion of this study is described.

This study is a proposal for realizing services efficiently, inexpensively and securely, using mobile agents. Mobile agents can reduce traffic load of networks and can develop ubiquitous services. Agent security will be an interesting sphere of information technology in the future.