

**Using Dynamically-Generated Account to Integrate
Heterogeneous B2C E-Payment Systems**

by

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Master of E-Commerce Technology

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**Faculty of Science and Technology
University of Macau**

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A thesis submitted in partial fulfillment of the
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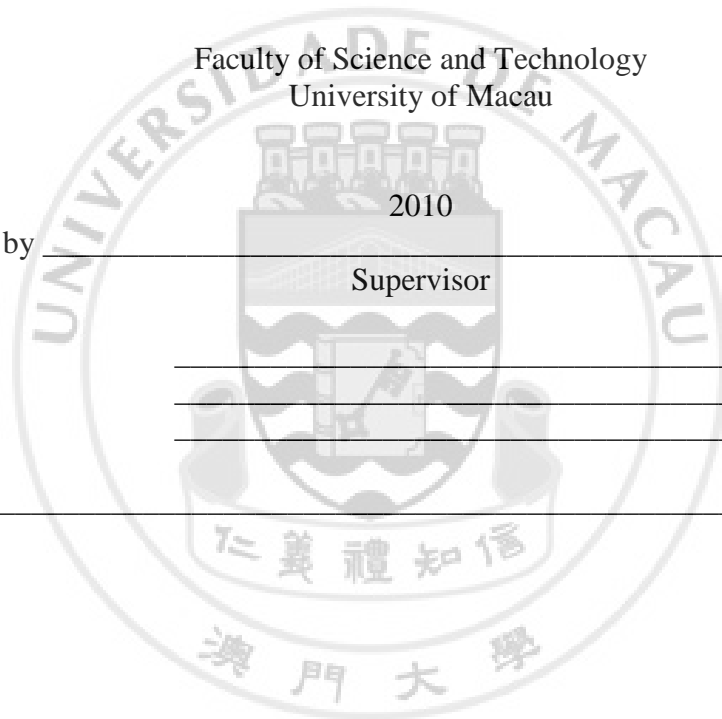
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Abstract

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Master of E-Commerce Technology**

Electronic payment (e-payment) practice is now popularly adopted by both online shops and their customers. An online shop may often support one or more e-payment systems and an online shop consumer may have one or several e-payment means. Nevertheless, we find that when an online shop consumer makes an e-payment in an online shop, his/her available e-payment means may not be supported by the e-payment systems that the online shop adopts. This is a B2C e-payment system mismatch problem and typically leads to an unsuccessful online transaction between online shop and online consumer. This thesis discusses this problem and provides an e-payment agent approach, called Event EXchange Agent (EEXA), to integrating heterogeneous B2C e-payment systems for resolving B2C e-payment system mismatch problem. The main idea of devising the EEXA approach is to provide a one-time available payment account to the consumer in shopping. With this dynamically-generated account, the consumer could have a usable one-time payment account that matches with the B2C payment system being used by the online shop. The one-time account is generated and available in two of proposed methods.

The EEXA approach solves the e-payment mismatch problem by exchanging accounts between different Payment Systems. The system architecture includes three Layers: Service Layer, Event Layer and Business Layer. The Service Layer provides the service to achieve the exchange account activities. The Event Layer is a parser to business module to exchange formatted information triggered by Event (XML Format). The Business Layer is a business module of exchange account domain.

The EEXA approach is implemented in an EEXA Prototype, which is architected in a layered framework with rule-based and modularized components. Its correctness is evaluated through a series of experiments on the EEXA Prototype against the requirements of performance and flexibility. The experiment results show that those activity events (such as payment account exchange, agent account checking, transaction confirm etc) of exchanging payment account are acceptable.



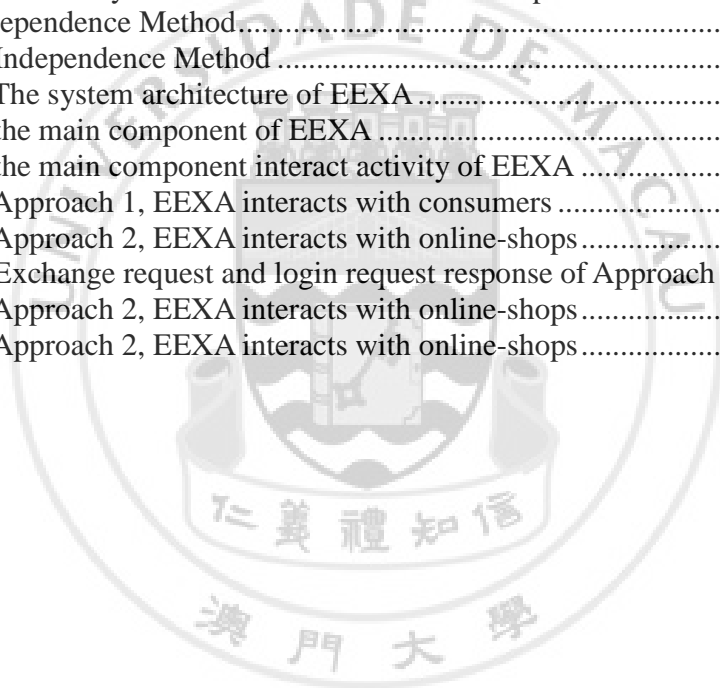
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LIST OF ABBREVIATIONS

AGTS (Agent Server)
AGTWS (Agent Web Server)
AGTG (Agent Gateway)
BDMs (Business Data Modules)
BDM(Business Data Modules)
DM(Data Module)
SL (Service Layer)
EL (Event Layer)
BL (Business Layer)
XMP (XML Message Parser)
SC (Service Component)
EC (Event Component)
SECC (Security Component)
FDC (Fraud Detection)
FM (Fraud management)
EEXA (EVENT Exchange Agent)
PSS (Payment System Service)
SHS (Shops Service)
CS (Consumer Service)
PSs (Payment Systems)
SHs (On-line Shops)
COs (Consumers)
SET(Secure Electronic Transaction)
HTTP(Hypertext Transfer Protocol)
TCP / IP (Transmission Control Protocol /Internet Protocol)
WWW (World-Wide-Web)
XML (eXtensible Markup Language)