

CUSTOMIZABLE PROTOCOL FOR INFORMATION TRANSFER BETWEEN HETEROGENEOUS PLATFORMS

by

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Abstract

Today, most of the organizational information systems are formed using several heterogeneous distributed systems. Some business operations cannot operate only with the information from its own. Relevant information might be maintained in other distributed systems. "Openness" is the basic and the most important property of a distributed system for intercommunicating. It describes how far a system can be extended and inter-operated with other systems. So many standards and protocols are developed for sharing data. However, these standards and protocols have some limitations when it is necessary to transfer different formats of information between heterogeneous systems. Among several available standards and protocols "SOAP web-service" is becoming popular.

The new protocol that is introduced in this research is based on human communication and conversation techniques. Rather than in system communication, human communication gives the upper hand for the two parties by enabling a meaningful communication exchange.

This new protocol is built upon SOAP protocol for online communications. It is designed in such a way, that most of the drawbacks of existing protocols and standards are eliminated. Offline communications are based on common information files such as spreadsheets.

This new information transfer protocol is bundled with better security features and better performance mechanism. It also can handle a communication process even when one party is rapidly changing, and hence it allows continuous system developments independent of the communication interface. Heterogeneous systems will be able to use this new protocol to exchange their information in a more effective and flexible manner.



Declaration

The work included in this report was done by me, and only by me, and the work has not been submitted for any other academic qualification at any institution.

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I certify that the declaration above by the candidate is true to the best of my knowledge and that this report is acceptable for evaluation for the CS6999 M.Sc. Research Project.

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Table of Contents

Declaration	i
Acknowledgment	ii
Abstract	iii
Table of Contents	iv
List of Figures	vii
List of Tables	ix
List of Abbreviations	x
1. Introduction	1
1.1 Background	1
1.2 The Problem	2
1.3 Strategy	2
1.4 Why it is Important?	3
1.5 Objective of the Project	3
1.6 Project Scope	3
1.7 Deliverables	4
1.8 Resource Requirements	4
1.9 Structure of the Thesis	4
2. Methodology.....	5
3. Literature Review	8
3.1 Distributed Applications	8
3.1.1 Distributed data	8
3.1.2 Distributed computations	9
3.1.3 Distributed users	10
3.1.4 Fundamental types of distributed systems	10
3.2 Openness	11
3.3 Distributed Architecture Models	12
3.4 Application Programming Interface (API)	13
3.5 Middleware	14
3.5.1 Socket-based communication	14
3.5.2 Transport Layer Interface (TLI)	17
3.5.3 Remote Procedure Call (RPC)	19
3.5.4 Distributed Object Systems	23
3.6 Web Services	32
3.6.1 Simple Object Access Protocol (SOAP)	35
3.6.2 REpresentational State Transfer (REST)	37
3.7 Offline Information Transfer and Storing	39
3.7.1 Database	39
3.7.2 Spreadsheet	40

3.8	Security	48
3.8.1	Encryption	48
3.8.2	Secure Socket Layer (SSL)	49
4.	New Protocol Design	52
4.1	Information Types (Formats), Names and Values	53
4.1.1	Issues in information types (format), names and values	53
4.1.2	Solutions for issues in information types (formats), names and values	55
4.2	Information Mapper	56
4.2.1	End user (Human) mapper	57
4.2.2	Static or attribute name mapper	58
4.2.3	Dynamic or information value mapper	59
4.3	Information Transfer Mechanisms	60
4.4	Formats of Information	62
4.4.1	Off-line information transfer format	62
4.4.2	Online information transfer Format	65
4.5	Security	68
4.5.1	Information transfer security	69
4.5.2	Information owners	69
4.5.3	Service security levels	70
5.	Case Study	72
5.1	Moodle	72
5.1.1	Technologies	74
5.1.2	Grade-book	75
5.2	LearnOrg MIS of the University of Moratuwa.....	77
5.2.1	Technologies	78
5.3	The Problem.....	78
5.4	Solution.....	80
6.	Developments.....	81
6.1	Solution Overview.....	81
6.2	Resources and Technologies.....	83
6.3	Development.....	83
6.3.1	Online information transfer	83
6.3.2	Off-line information transfer	84
6.3.3	Security development	85
6.4	Case Development Codes.....	85
7.	Testing and Results.....	100
7.1	Test Cases.....	100
7.2	Results.....	100
7.2.1	Compatibility Test Results.....	100

7.2.2 Performance Test Results.....	101
7.2.3 Security Test Results.....	104
8. Conclusion and Future work.....	105
8.1 Conclusions.....	105
8.2 Future Work.....	106
9. References and Bibliography.....	107
10. Appendix – A	113

List of Figures

Figure 3.1	Data distribution architectures.....	9
Figure 3.2	Software and Hardware service layers in distributed systems	12
Figure 3.3	Two clients connect to one server for socket communication.....	15
Figure 3.4	High-level architecture of Socket communication	16
Figure 3.5	High-level architecture of TLI communication	18
Figure 3.6	Remote Procedure Call architecture.....	20
Figure 3.7	High-level architecture of DCOM	24
Figure 3.8	The general organization of a CORBA system	27
Figure 3.9	CORBA object services	28
Figure 3.10	Basic RMI procedure	30
Figure 3.11	SOAP based Web-Services architecture	35
Figure 3.12	Archive architecture of MS Excel	44
Figure 3.13	Archive architecture of OpenOffice.org Calc.....	45
Figure 3.14	Communication protocol architecture with a SSL	50
Figure 4.1	High-level architecture of new protocol	52
Figure 4.2	High-level architecture of new protocol for on-line information transfer.....	62
Figure 4.3	Request string (XML) standard format - efficient in request.....	66
Figure 4.4	Standard sample request XML string - efficient in request	66
Figure 4.5	Request string (XML) standard format – efficient in respond.....	67
Figure 4.6	Standard sample request XML string - efficient in respond.....	67
Figure 4.7	Respond string (XML) standard format	68
Figure 4.8	Sample respond XML string.....	68
Figure 5.1	Sample output of Moodle Grade-book.....	75
Figure 5.2	Customizable panel in Moodle Grade-book.....	76
Figure 6.1	High-level architecture design solution for UoM case problem's	82

Figure 7.1 Sample spreadsheet file containing some information101

Figure 7.2 Online information transfer test performance.....102

Figure 7.3 Microsoft Excel based offline information transfer
performance test103

Figure 7.4 Open Office Calc based offline information transfer
performance test103

Figure 7.5 Sample set of information flowing through a secure channel104

Figure 7.6 Use of information security policy levels for sensitive information .104

List of Tables

Table 3.1	Comparison of Co-located and Distributed applications.....	11
Table 3.2	Popular CORBA Object Services	29
Table 3.3	Spreadsheet formats	41
Table 3.4	Comparison of Symmetric and Asymmetric key algorithms	49
Table 4.1	Sample static mapper	59
Table A.1	Microsoft Excel based test file sizes.....	113
Table A.2	Open Office Calc based test file sizes.....	113
Table A.3	Online information transfer test message sizes.....	114

List of Abbreviations

<i>AES</i>	Advanced Encryption Standard
<i>API</i>	Application Programming Interface
<i>B2B</i>	Business to Business
<i>CBC/R</i>	Call-by-copy/restore
<i>CBR</i>	Call-by-reference
<i>CBV</i>	Call-by-value
<i>CA</i>	Certificate Authority
<i>CLR</i>	Common Language Runtime engine
<i>CORBA</i>	Common Object Request Broker Architecture
<i>COM</i>	Component Object Model
<i>CMS</i>	Content Management System
<i>COS</i>	CORBA Object Services
<i>DES</i>	Data Encryption Standard
<i>DBMS</i>	Database Management System
<i>DCOM</i>	Distributed Component Object Model
<i>DCE</i>	Distributed Computing Environment
<i>DOM</i>	Document Object Model
<i>DS</i>	Distributed System
<i>XML</i>	Extended Markup Language
<i>GIOP</i>	General Inter ORB Protocol
<i>HTIOP</i>	Hyper Text Inter ORB Protocol
<i>HTTP</i>	HyperText Transfer Protocol
<i>IT</i>	Information Technology
<i>IDE</i>	Integrated Development Environment
<i>IDL</i>	Interface Definition Language
<i>IDEA</i>	International Data Encryption Algorithm
<i>IS</i>	Information System
<i>ISO</i>	International Organization for Standardization
<i>IETF</i>	Internet Engineering Task Force
<i>IIS</i>	Internet Information Server
<i>IIOP</i>	Internet Inter ORB Protocol
<i>IP</i>	Internet Protocol
<i>LMS</i>	Learning Management System
<i>MIS</i>	Management Information System
<i>MSRPC</i>	Microsoft Remote Procedure Call
<i>NFS</i>	Network File System
<i>OLE</i>	Object Linking and Embedding
<i>ORB</i>	Object Request Brokers
<i>ONC</i>	Open Network Computing
<i>OSI</i>	Open Systems Interconnection

<i>OS</i>	Operating System
<i>RMI</i>	Remote Method Invocation
<i>RPC</i>	Remote Procedure Call
<i>REST</i>	Representational State Transfer
<i>ROA</i>	Resource Oriented Architecture
<i>SSL</i>	Secure Sockets Layer
<i>SCM</i>	Service Control Manager
<i>SOA</i>	Service Oriented Architecture
<i>SOAP</i>	Simple Object Access Protocol
<i>SSLIOP</i>	SSL Inter ORB Protocol
<i>TLS</i>	Transport layer Security
<i>TCP</i>	Transmission Control Protocol
<i>TLI</i>	Transport Layer Interface
<i>TDES</i>	Triple Data Encryption Standard
<i>UDI</i>	Uniform Resource Identifier
<i>URI</i>	Uniform Resource Identifier
<i>UDP</i>	User Datagram Protocol
<i>WS</i>	Web Services
<i>WSDL</i>	Web Services Descriptions Language
<i>XML</i>	Extensible Markup Language
<i>XTI</i>	X/Open Transport Interface