

**DECOMPOSING USING SOA ON FILE SHARING AND WEB  
SERVICE ON WINDOWS AND MOBILE ENVIRONMENTS**

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**DECOMPOSING USING SOA ON FILE SHARING AND WEB SERVICE ON  
WINDOWS AND MOBILE ENVIRONMENTS**

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## **Abstract**

There has been great progress in the development of miniaturized devices and their demand have increased as well. In addition, people look forward to having similar programs on their stand-alone computers to run on their mobile phones' screens. As a result, the complexity of building a program has increased in this case because same programs are needed to run on two different platforms. One of the common programs among users is the file sharing system. In this paper, we will look at how decomposition architecture can be used for file sharing system in both desktop and mobile phone environments. In addition, we will explore on how to decrease the complexity of building systems on stand-alone computers as well as mobile devices. As a result, we have a file sharing system which is be able to run on windows and mobile environment using the decomposition approach.

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## Table of Content

Abstract .....	iii
Acknowledgment .....	iv
List of Figures .....	ix
List of Tables .....	xi
Abbreviation .....	xii
Chapter 1 Introduction .....	1
1.1. Background .....	1
1.2. Problem Statement .....	3
1.3. Research Questions .....	5
1.4. Objective of Study .....	5
1.5. Scope of Study .....	6
1.6. Significance of Study .....	6
1.7. Problem and Limitations .....	7
1.8. Organizations of the Report .....	7
Chapter 2 Literature Review .....	8
2.1. Introduction .....	8
2.2. Mobile Phone Development .....	8
2.3. File Sharing Systems .....	9
2.3.1. Downloading from Websites .....	10
2.3.2. Downloading from FTP Sites .....	10
2.3.3. Instant File Transfer: Instant Messaging .....	11
2.3.4. File Sharing Networks .....	12
2.3.5. Trading Files Manually .....	14
2.4. The Peer-to-Peer File Sharing Networks .....	14
2.4.1. How File Sharing Works .....	14
2.4.2. Searching for Files .....	15
2.5. Types of P2P Network .....	16

2.5.1.	Pure P2P .....	16
2.5.2.	Hybrid P2P .....	17
2.5.3.	Mixed P2P .....	17
2.6.	Microsoft .NET .....	17
2.6.1.	.NET Framework .....	18
2.6.2.	Microsoft .NET Framework Compact.....	18
2.6.3.	Device Emulator for Windows Mobile .....	18
2.7.	Web Services .....	19
2.7.1.	Web Services Interaction Types .....	21
2.7.1.1.	Traditional Web Service Interaction .....	21
2.7.1.2.	Two Ways Web Service Interaction.....	22
2.7.2.	Web Service Framework .....	22
2.8.	Application Architecture.....	24
2.8.1.	Distributed Applications.....	24
2.8.2.	Service-Oriented Architectural (SOA) .....	25
2.8.2.1.	SOA Definition .....	25
2.8.2.2.	Presentation Layer.....	26
2.8.2.3.	Service Layer (Web Services).....	28
2.8.2.4.	Business Logic Layer (BLL).....	29
2.8.2.5.	Data Access Layer.....	30
2.8.2.6.	Data Source .....	31
2.9.	Object Relational Mapping.....	31
2.10.	LINQ (Language INtegrated Query).....	34
2.11.	ADO.NET .....	36
2.12.	FileStreams in Database Management System .....	37
2.13.	Summary .....	37
Chapter 3 Research Methodology.....		39
3.1.	Overall Work .....	39
3.2.	Preliminary Study .....	41
3.3.	Prototype Development .....	41



3.3.1.	The Architecture of the System .....	41
3.3.2.	Building Database.....	43
3.3.3.	Mapping Tables .....	43
3.3.4.	Data Access Layer .....	43
3.3.4.1.	Interface Data Access Layer (IDAL) .....	43
3.3.4.2.	SQL DAL .....	44
3.3.4.3.	Data Access Layer Factory (DAL Factory) .....	44
3.4.	Business Logic Layer (BLL) .....	45
3.5.	Service Layer (Web Service).....	46
3.6.	Designing Interface.....	47
3.6.1.	UI Components.....	47
3.6.2.	Managers .....	48
3.7.	Test.....	49
3.8.	Overall Activates .....	49
3.9.	Summary .....	51
Chapter 4 Findings.....		52
4.1.	Important Components.....	52
4.1.1.	Service Layer.....	52
4.1.2.	Interface Data Access Layer (IDAL).....	53
4.1.3.	DAL Factory (DAL Factory).....	53
4.3.	System Prototypes.....	57
4.4.	Database Diagram.....	61
4.4.1.	Users Table .....	62
Chapter 5 Conclusion and Future Work .....		63
5.1.	Conclusion .....	63
5.1.1.	Advantages and Disadvantages .....	64
5.1.1.1.	Advantages .....	64
5.1.1.2.	Disadvantages.....	64
5.1.2.	Objectives .....	64

5.2. Future Work.....	65
Appendix A Class Diagrams of the System.....	66
Appendix B Implementation of Some Classes .....	70
References.....	90

## List of Figures

Figure 2.1: Screen shot of FileZilla program, <a href="http://filezilla-project.org/images/screenshots/fz3_win_main.png">http://filezilla-project.org/images/screenshots/fz3_win_main.png</a> .....	11
Figure 2.2: Screen shot of BitTorrent 6.1 Program <a href="http://images.snapfiles.com/screenfiles/bittorrent.gif">http://images.snapfiles.com/screenfiles/bittorrent.gif</a> .....	13
Figure 2.3: Gnutella Architecture (Kim J. ).....	16
Figure 2.4: Napster Architecture (Kim J. ).....	17
Figure 2.5: Client and server with unidirectional Firewalls (Liu, Wang, Li, & Chou, 2006) .....	21
Figure 2.6: Two-way interaction patterns of client/server (Liu, Wang, Li, & Chou, 2006) .....	22
Figure 2.7: Basic Web services architecture (Newcomer & Lomow, 2004).....	23
Figure 2.8: Sample of SOAP message for IsExist(Guid) method .....	23
Figure 2.9: Structure of a distributed system. (Puder, Römer, & Pilhofer, 2006) .....	25
Figure 2.10: Service-Oriented Architectural Style (SOA) (Somasegar, Guthrie, & Hill, 2009) .....	26
Figure 2.11: XML Sample Represents Files Table in the Database by Mapping Relational Object Technique.....	32
Figure 2.12: FileInfo class which is mapped by the XML notation in Figure 2.12 by C# code.....	33
Figure 2.13: Sample of using LINQ .....	36
Figure 3.1: Overall the Work.....	40
Figure 3.2: The Architecture of the System.....	42
Figure 3.3: Interface IUser (C#) as a sample of IDAL layer .....	44
Figure 3.4: Sample of using reflection in building DAL Factory layer (C#) .....	45
Figure 3.5: Overall activities at run-time.....	50
Figure 4.1: Shows how XML configuration file has declared the SQL DAL name .....	54
Figure 4.2: The chart of time cross the size of files on desktop computer in different packet size.....	56

Figure 4.3: The chart of the time cross the size of files on mobile devices in different packet size.....	56
Figure 4.4: Main tab (Windows Application).....	57
Figure 4.5: Shared Resources tab (Windows Application).....	58
Figure 4.6: Main tab (Mobile Application).....	59
Figure 4.7: Search Files tab (Mobile Application) .....	60
Figure 4.8: Database diagram of the system.....	61

## **List of Tables**

Table 4.1: Time cost (ss.ms) of uploading files from Windows environment to the database.....	55
Table 4.2: Time cost (mm:ss.ms) of downloading files from mobile environment .....	55

## Abbreviation

1G	First Generation
BLL	Business Logic Layer
CDMA	Code Division Multiple Access
DAL	Data Access Layer
DAL Factory	Data Access Layer Factory
DBMS	Database Management System
DLINQ	Data Language INtegrated Query
EDGE	Enhanced Data rates for GSM Evolution
Gbps	Giga bit per second
GPRS	General Packet Radio Service
HTTP	Hypertext Transfer Protocol
IDAL	Interface Data Access Layer
LINQ	Language INtegrated Query
Mbps	Mega bit per second
ORM	Object-Relational Mapping
P2P	Peer to Peer
RPC	Remote procedure call
SOA	Service-Oriented Architecture
SOAP	Simple Object Access Protocol

SQL DAL	SQL Data Access Layer
UDDI	Universal Description Discovery and Integration
UI	User Interface
UMTS	Universal Mobile Telecommunications System
WCDMA	Wideband Code Division Multiple Access
Wi-Fi	Wireless Fidelity
WSDL	Web Services Description Language
XML	eXtensible Markup Language

# Chapter 1

## Introduction

### 1.1. Background

Mobile phone networks started with 1G which was the first generation of mobile technology that was introduced in early of 1980's (Jamil, Shaikh, Shahzad, & Awais, 2008). The milestone of it is that it used analog cellular service, circuit-based, and narrowband. The only main service that it had was voice communication (Lawton, 2005). Then, the 2G (second generation) was launched as the upgrade technique to 1G. The main change in 2G is that it uses digital signals instead of the analog. However, 2G does not have any huge improvements in terms of services, which are voice communication and limited data transmission. Some improvements applied to 2G resulted in 2.5G which has better data transmission; General Packet Radio Service and Enhanced Data GSM Environment (Lawton, 2005). The 3G network was launched soon after which provides improved speed of data transformation and wideband CDMA (WCDMA), used in the Universal Mobile Telecommunications System (UMTS). Even though, it was faster than 2.5G, many communication industries were frustrated by 3G because it is costly in terms of implementation and it does not supply the services they need. 4G is currently the most anticipated and best mobile environment. It has a very high speed which reaches 100 Mbps and fixed rates of 1 Gbps. 4G will support multimedia as 3G does. The speed of 4G will be 260 times better than 3G since it will surpass 100 Mbps. One important advantage is that the implementation of 4G will be cheaper than 3G (Jamil, Shaikh, Shahzad, & Awais, 2008).

The demand of mobile phone applications is increased by the rapid developments of mobile devices as well as their operating systems. In the past, transferring short text messages and making calls were the only features mobile phones had (Yang, Chen, Chen,



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