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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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 thought, 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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