

# Service Oriented Architecture Case Study

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## Introduction

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- ❑ Materials to be used in lab exercises for 'Network Programming'
- ❑ 'Step-by-step' guide for students
- ❑ Developed for two different environments
- ❑ Created by students
- ❑ Available online for students

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## Environments

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- ❑ First:
  - C#, ASP .NET 2.0
  - IIS
  - Visual Studio 2005
- ❑ Second:
  - Java
  - JBoss 4.0.5GA with Axis-1\_4
  - Eclipse with Lomboz plugin

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## Web Service Definitions

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- ❑ Provide functionality to other applications, without the constraint that the service runs on the same machine as the application
- ❑ May be distributed across the network
- ❑ Can be written in different programming languages and run on various platforms; need several standards
- ❑ A new form of Distributed Computing Environment(DCE)
- ❑ Consists of:
  - A mechanism to define/register service
  - A mechanism to find the service
  - A transport mechanism

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## Web Service Creation (1)

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- ❑ Any existing .NET application can be converted into a Web Service by :
  - Adding a reference to *System.Web.Service* library module
  - Annotating the exposed methods with the attribute *WebMethod*
  - Applying a *WebService* attribute to the class definition
- ❑ Create the service as a *web application* in ASP.NET; the above steps are performed automatically and a skeleton class code is generated

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## Web Service Creation (2)

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- ❑ Create a new project in Eclipse
- ❑ Create a new class in Eclipse, and add the methods to the new class
- ❑ Transform the project into a Web Service
- ❑ Examine the generated deployment, server configuration and *.wsdl* files

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## Web Service Deployment (1)

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- Create a *virtual directory* in IIS (give it an alias)
- Provide a path to the directory containing the information about the Web Service (.asmx file and App\_Code folder are mandatory)
- Set access permissions for the virtual directory (usually the default 'read' and 'run scripts' are enough)
- The Web Service will be available through the virtual directory alias (e.g. *http://computername/WS/Webserv.asmx*)

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## Web Service Deployment (2)

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- ❑ Copy the class tree from the development environment (Eclipse) into the deployment directory of the application server
- ❑ Check the *AXISCLASSPATH* environment variable
- ❑ Start the server either from Eclipse or from the command line

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## Web Service Client Creation (1)

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- Create a new Web Application
- Add a reference to the Web Service that will be consumed (used)
- Examine the structure of the web client that as created
- Create the source code files
- We Services can be invoked either synchronously or asynchronously (the type of call influences the structure of the code of the client)

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## Web Service Client Creation (2)

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- ❑ In Eclipse create a Dynamic Web Project
- ❑ Transform the project into a Web Service Client and specify the service to be consumed
- ❑ An interface corresponding to the web service class and a proxy file will be generated

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## Web Service Client Deployment

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- ❑ Nothing else required in .NET environment
- ❑ Copy the client class tree from Eclipse to JBoss
- ❑ Copy the server-config.wsdd file into a higher directory in JBoss
- ❑ Restart JBoss

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