

Proxy Demo

Software Design Specification

version 1.0

Version history

Version #	Implemented By	Revision Date	Reason
1.0	<i>Maciej Kaniewski</i>	<i>04/07/2014</i>	Initial Design Definition draft

Table of Contents

Version history.....	2
Introduction.....	4
Design Considerations.....	4
Assumptions.....	4
Dependencies.....	4
Netty.....	4
SLF4J.....	5
Mockito.....	5
JUnit.....	5
Architecture.....	5
Build.....	5
Communication protocol.....	5
A sample message.....	6

Introduction

Proxy Server demo project was created based on specification:

Write a proxy server application that can accept requests over a socket, send the request to another server, and then send the response from that server back to the originating client via the proxy.

The functionality of the server should be something simple like adding two numbers, appending a string to the request, etc.

The application should be able to handle multiple concurrent requests

To implement such a Server I have decided to base network communication on well proven and tested network communication library netty.io and Java NIO Channels.

Design Considerations

Assumptions

Main assumption in this project is that a proxy server is always configured to pass communication only to one server specified in configuration file it is not a part of design for client to send to proxy any configuration messages which would change proxy remote server.

Proxy server should not do any modifications to data forwarded and reviewed from both server and client.

Proxy server is not interested in any data it is not parsing, this data and is not taking any action .

Proxy server can handle multiple connections with great performance

Dependencies

Project is using four open source libraries they all have a safe open source licences and are widely used across industry.

Netty

First one is netty it is well established network framework designed for creating advanced network projects it has multiple protocols already implemented and it is very simple to create new ones . It has a well proven Architecture and has well established position on the market, used by companies like Facebook , Avast , Red Hat, Twitter...

Licence - Apache 2.0

SLF4J

Is a logging facade created for java serves as a simple abstraction for various logging frameworks (e.g. java.util.logging, logback, log4j) allowing the end user to plug in the desired logging framework at deployment time.

Licence - MIT

Mockito

"Mockito is a mocking framework that tastes really good. It lets you write beautiful tests with clean & simple API. Mockito doesn't give you hangover because the tests are very readable and they produce clean verification errors."

Licence - MIT

jUnit

Well known java unit testing framework

Licence - CPL

Architecture

Build

Maven is used as a build tool , project is created from 4 modules

parent – is a maven parent project which is grouping all other modules

common – this module stores protocol classed decoders encoders and shared classes

server – this module stores server classes and its tests

client – this module stores Client classes .

proxy - this module stores Proxy project , configuration for this project and tests

Communication protocol

Message sent between client and server has well defined structure it contains two

informations an integer number and String UTF-16 message

4 bytes - int number

4 bytes - int message size

message size* 2 bytes - String message

A sample message

This is a sample message which sends number 255

And message “test”

00	00	00	FF	00	00	00	04	00	74	00	65	00	73	00	74
Int number				Int size				String message							

Hexadecimal dump from logger :

```
+-----+
|  0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f  |
+-----+
|00000000| 00 00 00 ff 00 00 00 04 00 74 00 65 00 73 00 74 |.....t.e.s.t|
+-----+
```