

Evaluation

8.1 Introduction

In previous chapter it has been discussed about the practical usage of the implemented SOAP message optimizer tool. In this chapter it will present the evaluation of the prototype system and as a result the evaluation of the context based approach. It will discuss the experiment setup and the test results in detail in this chapter.

8.2 Experiment setup

It has been created a test web-service and a web-service client to test the optimization tool. The GlassFish [11] Application server has been used as the test server with our test web-service application. A test web-service client also has created for connect to this test application. This test application basically got a list of Airports. The web-service method is provided for specify the country and then the service will return list of all airports within that country. Therefore when we specify different country codes it will give different set of airports and the resulting SOAP message will be different. By this method we can prove that this tool will work for dynamically changing SOAP messages.

As the evaluation process of the SOAP optimization tool it has been measured the original message length, the transferred message length, the time taken to transfer the data from server to client, and the total lime taken to present the message on the web-service client side (including the time taken to regenerate the message at the client side). It has been collected data by accessing the web-service through internet. For that the web-service has been setup on a remote machine and that machine has been accessed via VPN. Time and the data length were measured on the SOAPHandler class implemented on the web-service client side and saved as CSV file. Five data samples have been taken per each criterion and five different criteria were used. The criteria were selected such that the resulting SOAP messages for those criteria were in different length.

| Search Criteria | Original Message size (byte) | Optimization used | | | Optimization not used | | | Reduction Ratio |
|-----------------|------------------------------|------------------------------|--------------------|-----------------|------------------------------|--------------------|-----------------|-----------------|
| | | Transfer message size (byte) | Transfer time (ms) | Total time (ms) | Transfer message size (byte) | Transfer time (ms) | Total time (ms) | |
| LK | 1332 | 292 | 1006 | 1121.6 | 1332 | 2528.4 | 2528.4 | 78.07808 |
| JP | 13503 | 3261 | 890.4 | 940.6 | 13503 | 2309.8 | 2309.8 | 75.84981 |
| CA | 73631 | 18770 | 1453.2 | 1525.2 | 73631 | 2650 | 2650 | 74.50802 |
| AU | 86083 | 21378 | 1034.2 | 1109.4 | 86083 | 2787.8 | 2787.8 | 75.16583 |
| US | 307112 | 79018 | 2490.8 | 2594 | 307112 | 3012.4 | 3012.4 | 74.27062 |

Table 8.1 : Summary of evaluation data

8.3 Test results

Summary of the data collected during the testing are shown on the Table 8.1. Please refer the Appendix A for the complete set of data collected during the evaluation process. It has been observed that the data reduction ratio by this method is around 75%. The reduction ratio does not vary depend on the size of the message.

The time taken to complete the data transfer is also measured. The measured time includes the time taken to transfer the message as well as the time taken to process the message. It has been observed that when the message is getting larger the time taken from this optimizer tool is less than the time taken to transfer without any optimization.

The graph of data reduction ratio comparison is also prove that it has been reduced the 75% of the message (on average) by using this tool. The graph is included in figure 8.1. The time comparison is included in the figure 8.2.

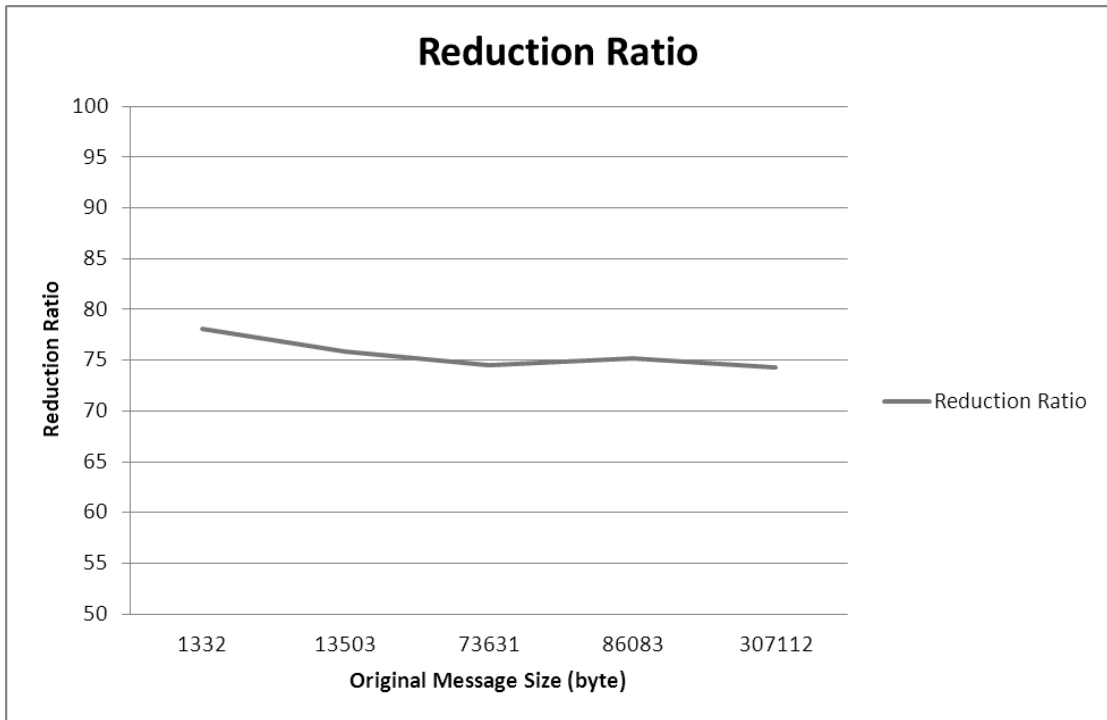


Figure 8.1 : Data reduction ratio comparison graph



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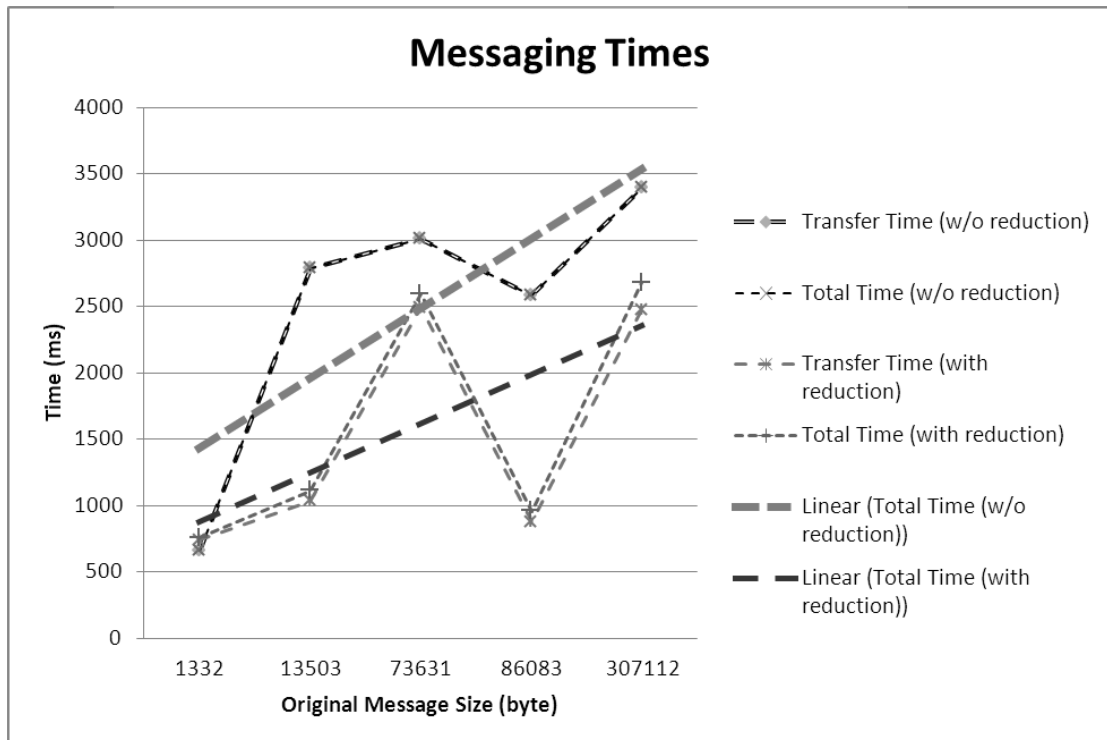


Figure 8.2 : Messaging time comparison graph

8.4 Summary

This chapter has discussed about the evaluation process of the system. The experimental setup and the test results were discussed in detail. A software based method has been used to do the evaluation and transfer times and length of data were recorded for each criterion. Then those were compared with the times taken when the optimizer tool is not used. Finally the results have been graphed to compare the data reduction of the tool and data transfer times. The conclusion and further improvements of the tool will be discussed in next chapter.



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