

Advanced Systems Lab - Milestone I

Lukas Elmer, Matthias Ganz

October 30, 2013

Abstract

This document, describes the message queuing system which was build. Architecture and design choices are shown and explained. Further test scenarios and test loads are defined. Resulting test output is described and analysed.

1 Messaging System

In this section the system under test (or middle ware component) is described.

1.1 Overview

2 Messaging System

3 Design Decisions

3.1 Schead Load

Sched load blocking request response queues suboptimal

If queue full, immediately stop request

3.2 NIO vs IO

NIO VS Blocking IO

3.3 Connection Pooling

3.4 Buffer Pooling

3.5 Message Transmission

4 Performance Relevant Features

4.1 Overview

During a brainstorming session, a broad spectrum of performance relevant features were extracted, see figure ???. Then, the primary features (PF, blue) and the secondary features (SF, green) were chosen according to the group members domain specific knowledge and presumptions.

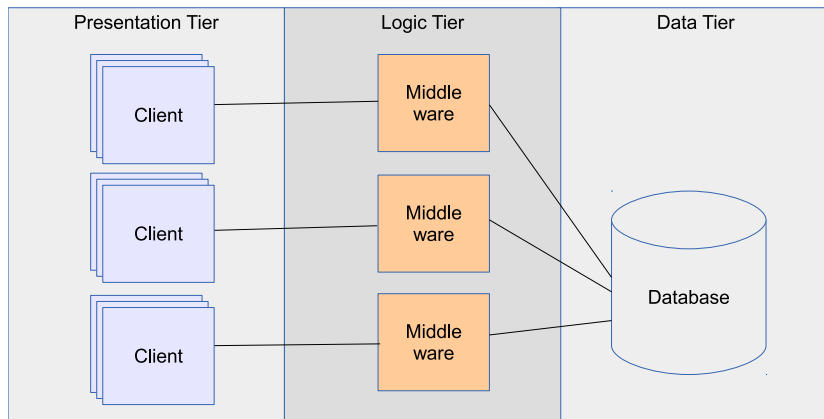


Figure 1: System Overview

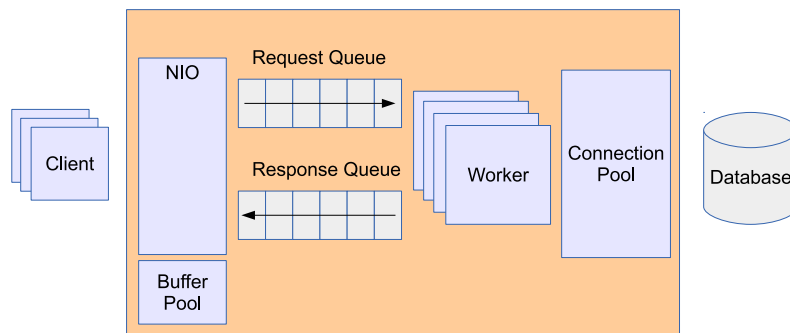


Figure 2: Middleware's main Components

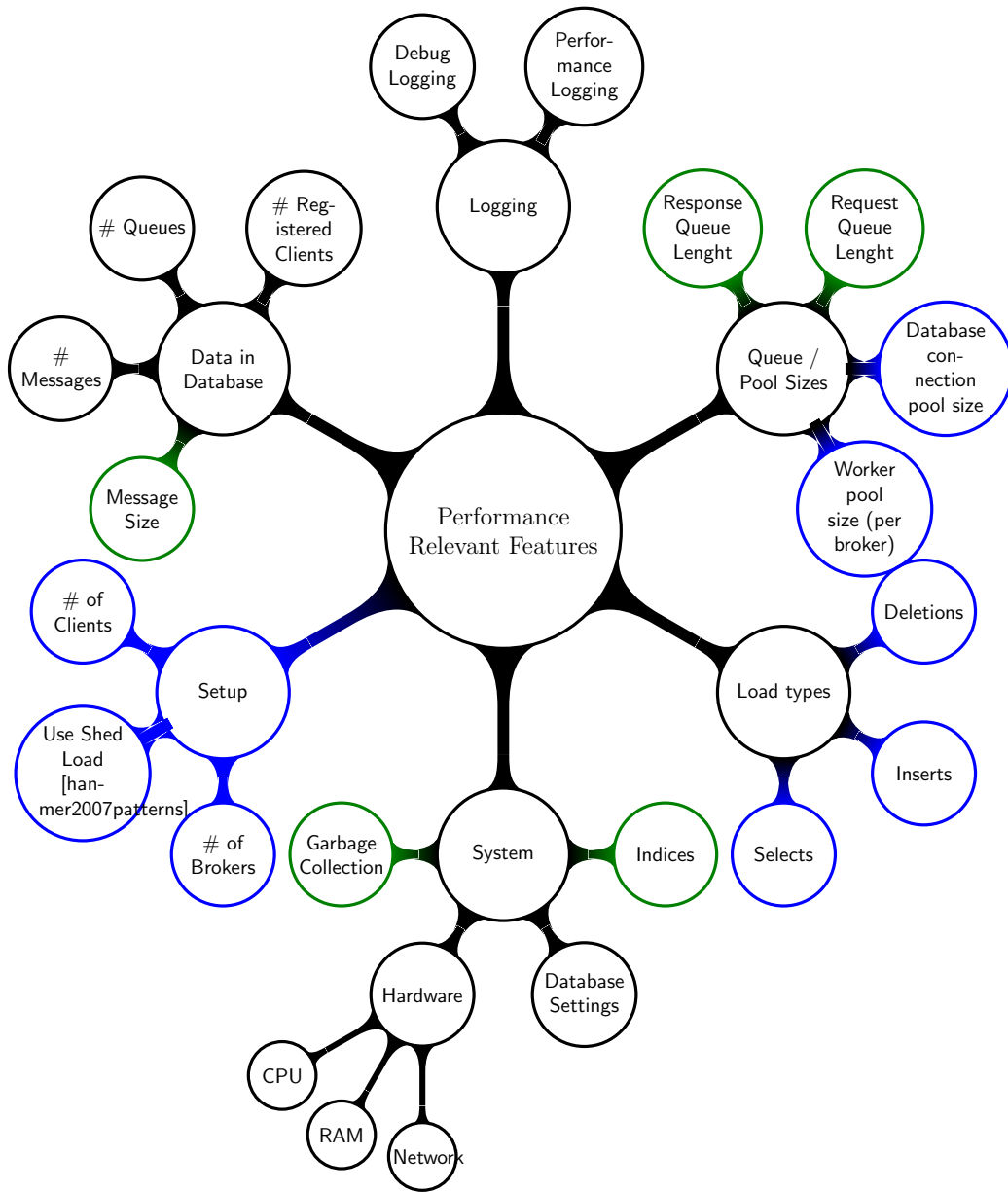


Figure 3: Performance relevant features mind map

5 How We Measured Our System

5.1 Hypothesis

6 References

<http://dl.acm.org/citation.cfm?id=SERIES12798.1557393>

@bookhanmer2007patterns, title=Patterns for fault tolerant software, author=Hanmer, Robert, year=2007, isbn = 0470319798, 9780470319796, publisher=Wiley Publishing

7 Notes - to delete

7.1 What should be included in this report

7.1.1 System Code

- Code
- Scripts for experiment

7.1.2 Experimental data

- Basic tests and simple traces
- Long running traces, Raw data and graphs for all experiments

7.1.3 Written report

- Architectural diagrams
- Interface description
- explanation of the system design
- Description of all experiments
- statistical treatment of data
- commentary analysis