

# Advanced Systems Lab - Design

Lukas Elmer, Matthias Ganz

September 23, 2013

# Table of content

Overview

Database

Messaging System

Client

Client (new)

Communication Protocol

Management Interface

Measurements

# System Overview

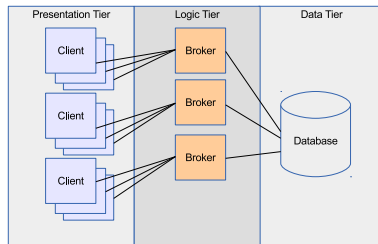


Figure : System Overview

The messaging system utilizes a single database instance. On the logic tier multiple broker instances may be running. Each broker serves a certain number of clients.

# Database Schema

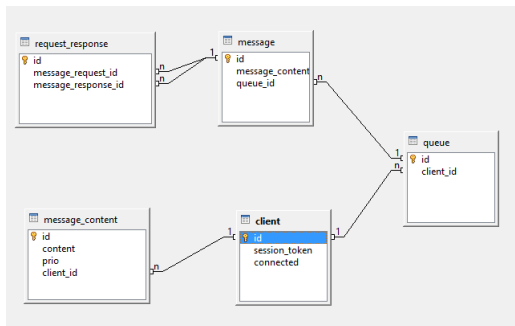


Figure : Database Schema

# Server

- ▶ Threading
- ▶ Java NIO (Reactor or Leader/Followers)

<http://www.kircher-schwanninger.de/michael/publications/lf.pdf>

# Client to Broker Communication

Describe Communication between clients and broker

- ▶ simplified http, only http post
- ▶ xml over http with fixed content-length

Are we allowed to use this:

<http://docs.oracle.com/javase/7/docs/jre/api/net/httpserver/spec/com/sun/net/httpserver/HttpServer.html>

HTTP in Java:

<http://docs.oracle.com/javase/6/docs/jre/api/net/httpserver/spec/com/sun/net/httpserver/HttpExchange.html>

-¿ Problem: no keep-alive -¿ bad...?

# Client to Broker Communication (new)

Describe Communication between clients and broker

- ▶ Serialize POJO's and send it over the network
- ▶ Header: length of the Java object
- ▶ Body: serialized Java object
- ▶ Connection: keep alive, connection pool
- ▶ Security: no authentication

# Client

Browser: good idea for development and management console.

But: cannot do many requests and measure them?

- ▶ May be implemented as a simple html page running in any browser
- ▶ Management console in HTTP?



# Client

- ▶ Different clients are implemented in Java
  - ▶ Only send messages
  - ▶ Only read messages
  - ▶ Only do request/response
- ▶ Management console in HTTP
  - ▶ To start/stop the current action
  - ▶ To collect statistics

# Communication Protocol

Communication Protocol used by client and server

# Management Interface

Use JMX?

# What experiments are performed

1. what kind of experiments are performed
2. how to perform measurements
3. where to store measurement results (Format, Use DB, etc)