Advanced Systems Lab - Design

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Design Choices

- Every client has a private queue
- Private messages can only be sent to private queues
- Every queue is handled by a specific host, this allows caching
- A message sent to multiple queues is equal to sending multiple messages with the same content to specific queues
- Use Java conventions and guidelines, like naming :-)
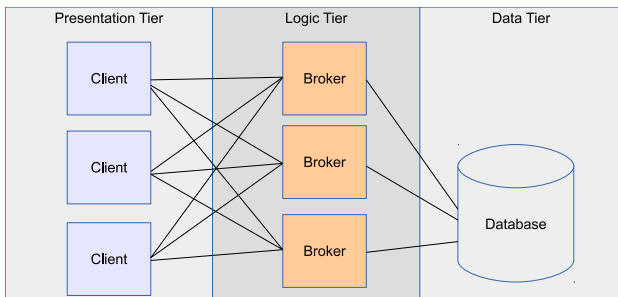
System Overview

Figure : System Overview

System Overview

- The messaging system utilizes a single database instance.
- On the logic tier multiple broker instances may be running.
- Each broker is responsible for certain queues.
- Clients may ask any broker about who handles requests for a specific queue.
- A client may connect to any number of brokers depending on which target queue it wants to send messages.
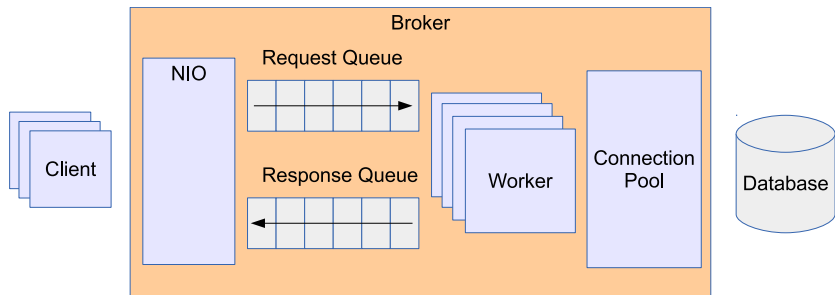
Broker Threading
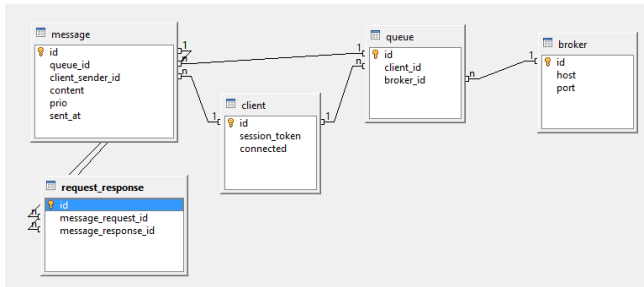

Figure : Broker Threading

Database Schema

Figure : Database Schema

Client to Broker Communication

- Header: Length of the Java object in bytes.
- Body: Serialized Java object (Request, Response).
- Serialize POJO's and send it over the network
- Connection: keep alive, connection pool
- Security: no authentication, no encryption

Client

- Clients may have different configurations depending on the test case currently performed.
  - Only send messages
  - Only read messages
  - Only do request/response
- Management interface in HTTP
  - To start/stop the current action
  - To collect statistics
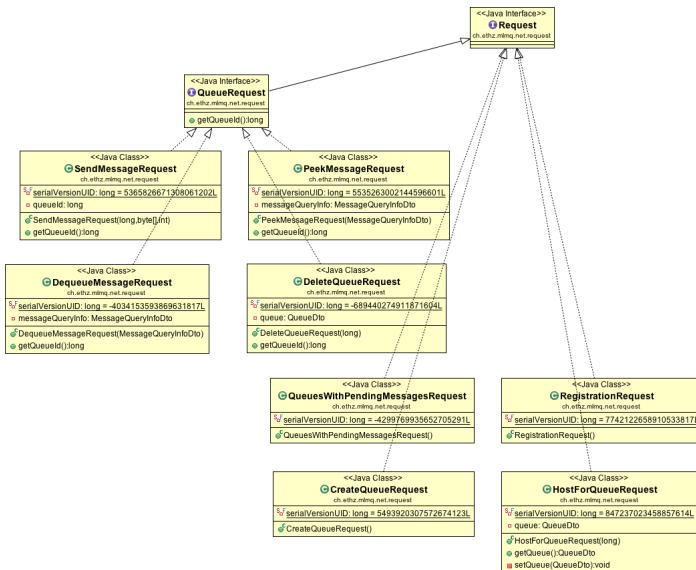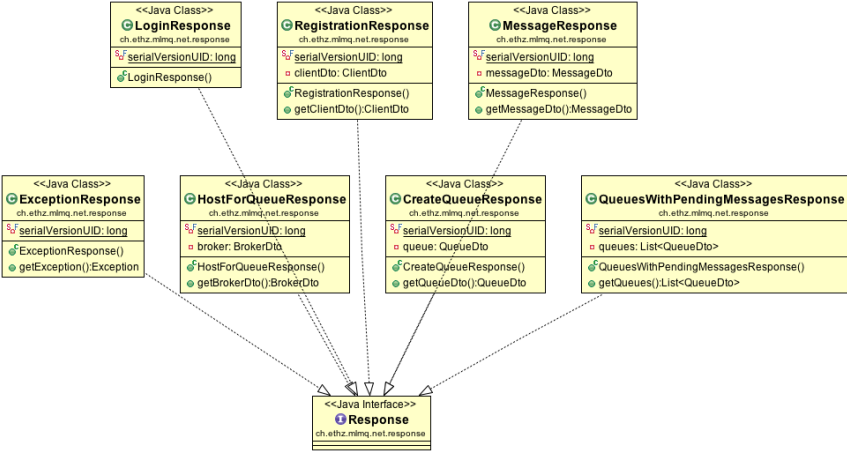- Use any Browser as Management Interface

Request

Figure : Request Class Diagram

Response

Figure : Response Class Diagram