

Advanced Systems Lab - Design

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September 26, 2013

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System Overview

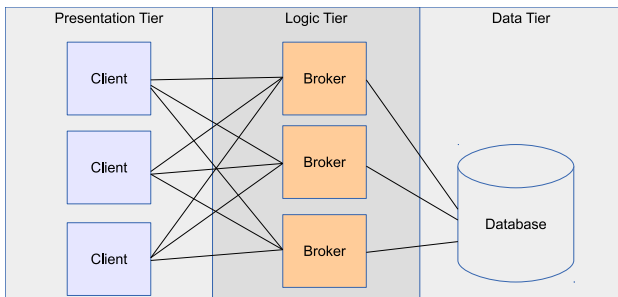


Figure : System Overview

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

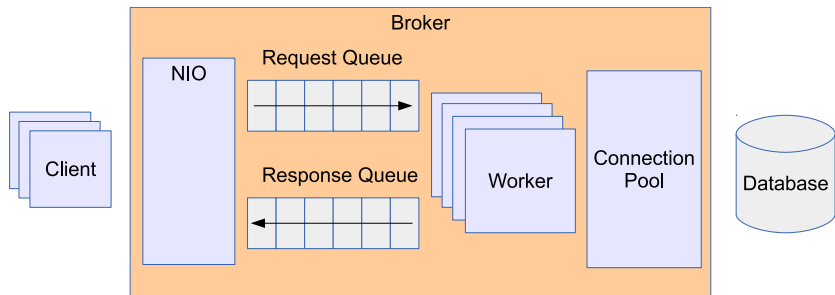


Figure : Broker Threading

Database Schema

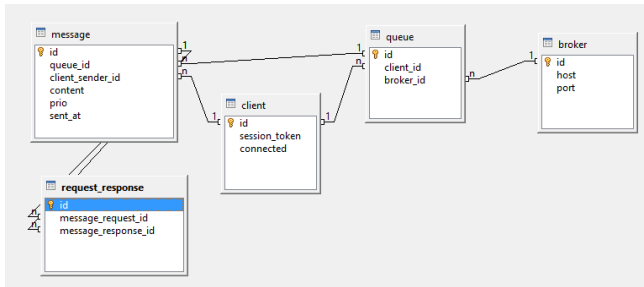


Figure : Database Schema

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

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

Request

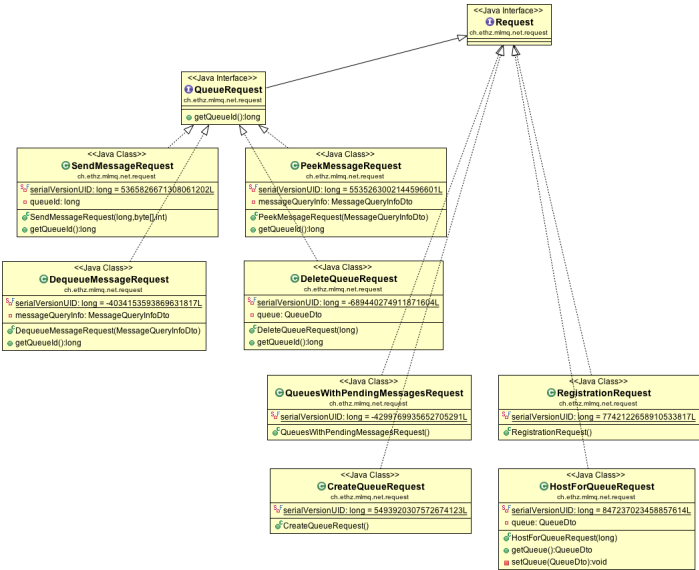


Figure : Request Class Diagram

Response

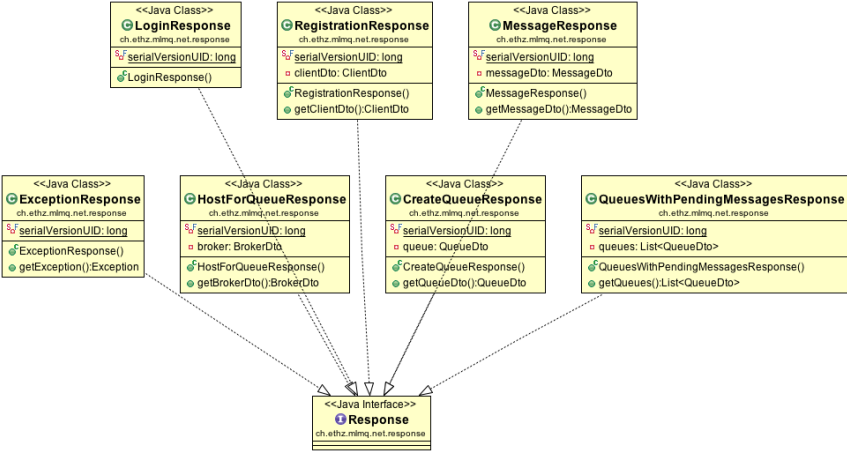


Figure : Response Class Diagram