Assignment 1

MCS4207 Enterprise Web Architectures

Publish and Subscribe (Pub/Sub) Middleware Architecture

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Source code - [Socket-programming](https://github.com/dodandeniya/Socket-programming.git)

# Task 4: Enhance the Architecture to Gain Improvement in Availability and Reliability

Messaging Server

Messaging Server

Messaging Server

Messaging Server

Load balancer / Middleware

Publisher 1

Publisher 2

Publisher n

Subscriber1

Subscriber2

Subscriber n

Figure 1 Proposed new distributed architecture.

The proposed distributed architecture improving the reliability and availability of the Pub / Sub system and resolving the issue of single point of failure. This distributed architecture contains multiple servers in a cluster and each server shares active topics and subscribers withing each other. In case, if one server fails, another server can take over those. Furthermore, each server can handle publishers and subscribers connected to the system.

The Load balancer at as a middleware of the system and it will route each publishers and subscribers to different servers based on the load and the availability of server nodes. If a particular server node is failed, load balancer redirects it connections to other available server nodes. If the request lode getting increased, and cannot handle from existing available servers, load balancer spinning a new server node based on the capacity.

Publishers can connect to any server node and publish messages to the subscribers. Subscribers can also connect to any server node and receive messages based on their subscribed topics. Subscribers can automatically connect to any server node if their previous connection not available.