

Publisher Subscriber System

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Introduction & Purpose

❖ **Messaging Pattern in Normal Scenario**

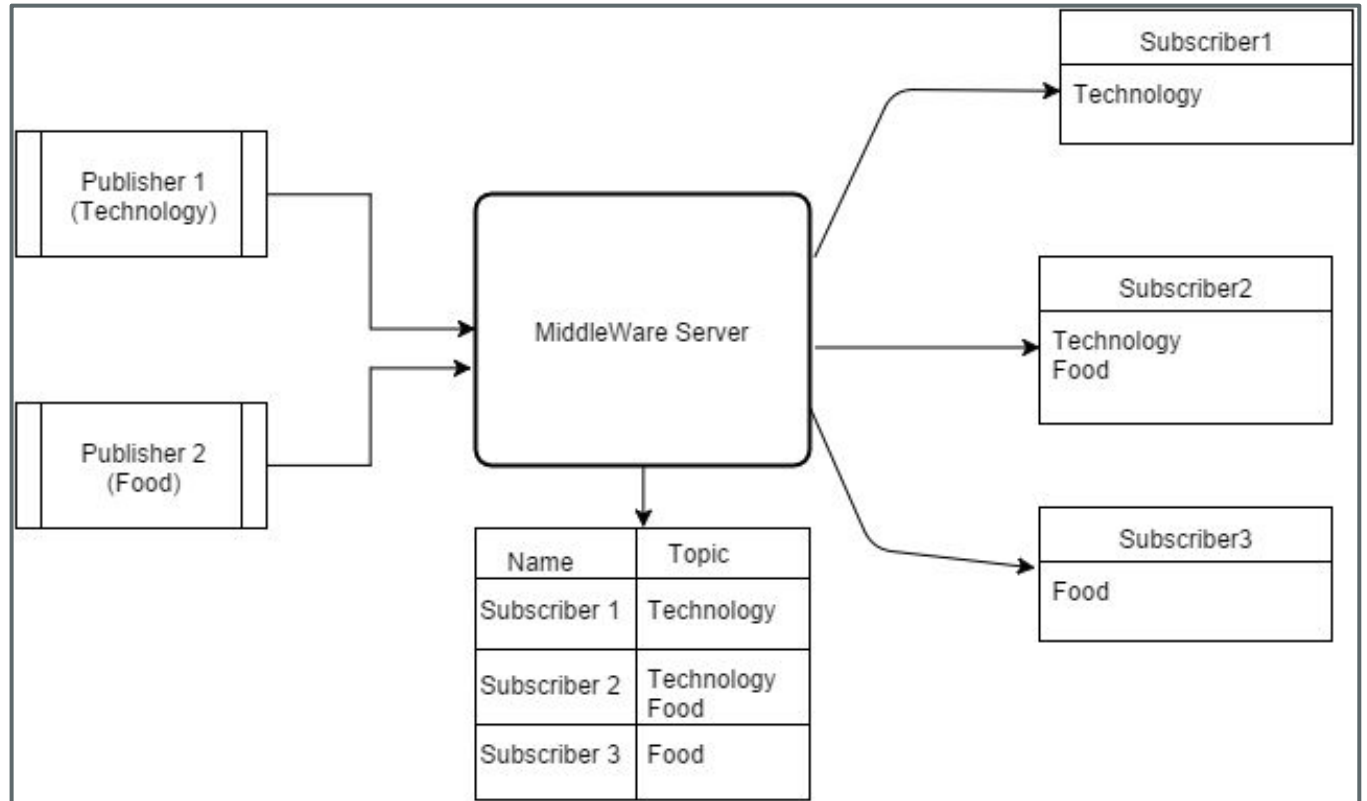
- Normal Scenario needs tight coupling of Client-Server
- Sender should have detail information about receivers
- Scalability Issue for high volume , tightly coupled data in enterprise Environment

❖ **Why Publisher Subscriber System:**

- Based on Message Filtering mechanism
- Selective distribution of Messages
- Overcome tightly coupling Scenario

Actors:

- ❖ Publishers
- ❖ Subscribers
- ❖ Middleware Servers



Types of Filtering Mechanism

❖ **Topic Based:**

- Also known as group/channel based filtering.
- Each channel belongs to one of the Topics like movie, sport, food etc.
- Publisher publishes messages to its channel.
- Subscriber receives message notification whenever it is published to their subscribed channel.
- Need to take care of effective event multicast to subscribers.

❖ **Content Based:**

- More expressive as subscriber can customize query over content of the event
- Example: Notify Stock quotes of Apple from New York State Exchange if the price is lower than 100

Approach & Difficulties

❖ Approach:

- Subscribers **subscribe** to Topics & messages published by Publisher are accordingly **forwarded** by the middleware.
- **Transport layer** connection between Publisher-Middleware & Middleware-Subscriber. (Almost, Similar to Client/Server model)
- We are using TCP protocol to achieve guaranteed delivery.
- **Application layer** handles the middleware and messaging mechanism.

❖ Difficulties:

- Inconsistent communication between UI & source-code.
- Thus, leading to inconsistent message delivery.

Advantages/Disadvantages

❖ Advantages	❖ Disadvantages
➤ Scalable	➤ No Guaranteed Delivery
➤ Message distribution can be controlled	➤ Instability due to load
➤ Abstraction layer for Sender (Publisher) and Receiver (Subscriber)	➤ Secured Communication not provided
➤ Loose Coupling	➤ Mediator needed, message format & unknown data structures

Applications

❖ **Weather Alert:**

- Publisher sends alerts to subscribers if there is a change in weather.

❖ **Online Stock Quotes:**

- Publisher sends alerts to subscriber to buy/sell stocks based on Market conditions.

❖ **Air-Ticket Alert:**

- Publisher sends alerts to subscriber when the fare of the Flights the subscriber is interested in, fall in the budget of the Subscriber.

Our Application


PUBLISHER

Enter Topic:

Available Topics:

Fruits
Fruits
Vegetables

Publish Feed:



Subscriber


Subscriber Name: Vegetables

Vegetables

Fruits: Need more Apples
Vegetables: Out of Potatoes

Select Topic to Unsubscribe

Fruits
Fruits
Vegetables



Subscriber


Subscriber Name: Fruit

Fruits

Fruits: Need more Apples

Select Topic to Unsubscribe

Fruits
Fruits



Thank You!