# Zbus Architecture

## Architecture

**Goal**

To make **M**essage **Q**ueueing(MQ) and **R**emote **P**rocedure **C**all(RPC) fast, light-weighted and easy to build solid service bus for different platforms. Simple words: zbus = mq + rpc.

**Typical scenarios**

1. business procedures needs to be decoupled from producers to consumers. MQ

2. computing intensive, time consuming jobs, should be finished asynchronously. MQ.

3. service methods needs to be exposed to internal systems, easy to invoke, and language neutral. RPC.

## zbus overall components

select

Route **Table**

MqClientPool **Table**

MqClient **detect connectivity**

MqClientPool

**Broker**

**Producer**

**Consumer**

Tracker (in MqServer)

pub (TrackerInfo)

MqServer1

MqServer2

MqServer3

ServerSelector

User Defined

1. Both Tracker and MqServer work inside of a same zbus instance.
2. **P**roducer, **B**roker, **C**onsumer, PBC model in high level API
3. PBC handles connection pooling, auto reconnect, high availability etc.

MqServer

MqClient

produce

consume

queryTopic/ConsumeGroup

removeTopic/ConsumeGroup

declareTopic/ConsumeGroup

| | | | | | | | | | | | |

**ConsumeGroup**1

**ConsumeGroup**2

**Topic** Writer

W

R

R

**Unicast** : readers share one same ConsumeGroup

**Broadcast**: readers use private own ConsumeGroups

**Multicast**: mix of the unicast and broadcast

Messaging Model = **Topic** + **ConsumeGroup**

Reader1

Reader

Reader

1. MqClient connects to MqServer, capable of **producing/consuming/managing** topic and consume group in MqServer.
2. Messaging Queue in MqServer is considered to be infinite of depth, messaging sequence follows FIFO, and **reading policy is controlled via ConsumeGroup** --each group can be shared or privately owned by readers. Simple craft on ConsumeGroup make unicast, broadcast and multicast messaging model work.

## zbus URL pattern

/produce/topic

/consume/topic/[group]

/declare/topic/[group]

/query/[topic]/[group]

/remove/topic/[group]

/pause/topic/[group]

/resume/topic/[group]

/empty/topic/[group]

/track\_sub

/track\_pub

/rpc/topic/method/param1/param2/…/[?module=xxx]

## Zbus Client Platforms

**HTTP Raw Client**

**JAVA**

**C#.NET**

**JavaScript (Browser WebSocket + Node.JS)**

**C**

**Python**