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AMQ 7 - Interconnect

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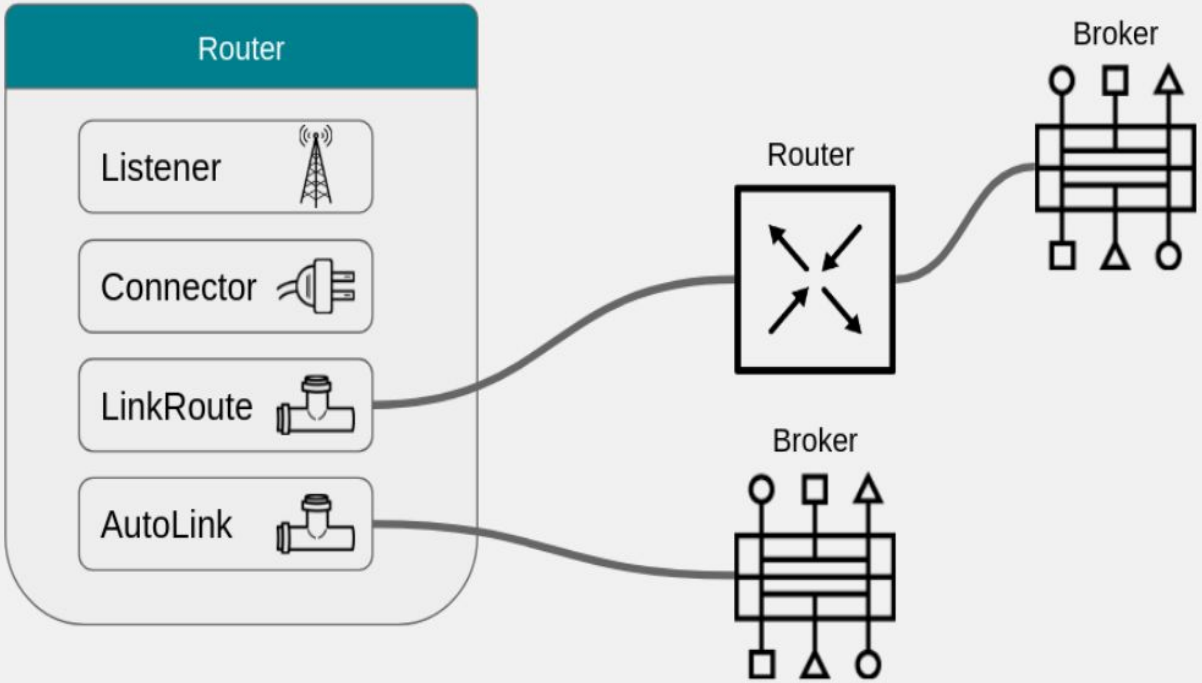
AMQ 7 Interconnect in a few workds

AMQ 7 and Microservices: Messaging for Everything

AMQ 7 - Interconnect Components



Components could be classified by:

- **Connections**:
  a. Listener,
  b. Connectors
- **Addresses**:
  a. AutoLink,
  b. LinkRoute

Note: Based on Apache QPid

AMQ 7 Interconnect - Connections

AMQ 7 - Interconnect Connections

Note: Connects clients, servers, AMQP services and other routers through network connections.

- **Listener**: Accept client connections.

  A client connecting to a router listener uses the same methods that if would use to connect to a broker. From the client's perspective the router connection and link establishment are identical to broker connection and link establishment.
- **Connector**: The router can also be configured to create outbound connections to messaging brokers or other AMQP entities using connectors.

  A connector is defined with the network address of the broker and the name or names of the resources that are available in that broker. When a router connects to a broker through a connector it uses the same methods a normal messaging client would use when connecting to the broker.

AMQ 7 - Interconnect Listener

There are types of listeners:

1. **normal**: The connection is used for AMQP clients using normal message delivery.
2. **inter-router** : The connection is assumed to be to another router in the network. Inter-router discovery and routing protocols can only be used over inter-router connections.
3. **route-container**: The connection is a broker or other resource that holds known addresses. The router will use this connection to create links as necessary. The addresses are available for routing only after the remote resource has created a connection.

AMQ 7 - Interconnect Connector

There different types of connectors:

1. **normal**: The connection is used for AMQP clients using normal message delivery. On this connector the router will initiate the connection but it will never create any links. Links are to be created by the peer that accepts the connection.
2. **inter-router**: The connection is assumed to be to another router in the network. Inter-router discovery and routing protocols can only be used over inter-router connections.
3. **route-container**: The connection is to a broker or other resource that holds known addresses. The router will use this connection to create links as necessary. The addresses are available for routing only after the router has created a connection to the remote resource.

AMQ 7 Interconnect - Addresses

AMQ 7 - Interconnect Addresses

- AMQP addresses are used to control the flow of messages across a network of routers.
- Addresses are used in a number of different places in the AMQP 1.0 protocol.
  - They can be used in a specific message in the to and reply-to fields of a message's properties.
  - They are also used during the creation of links in the address field of a source or a target.

- The router maintains several classes of address based on how the address is configured or discovered.
  - **Mobile (AutoLink):** The address is a rendezvous point between senders and receivers. The router aggregates and serializes messages from senders and distributes messages to receivers.
  - **Link Route (LinkRoute):** The address defines a private messaging path between a sender and a receiver. The router simply passes messages between the endpoints.

AMQ 7 Interconnect - Topologies

AMQ 7 - Interconnect Topologies

Addressing Different Needs

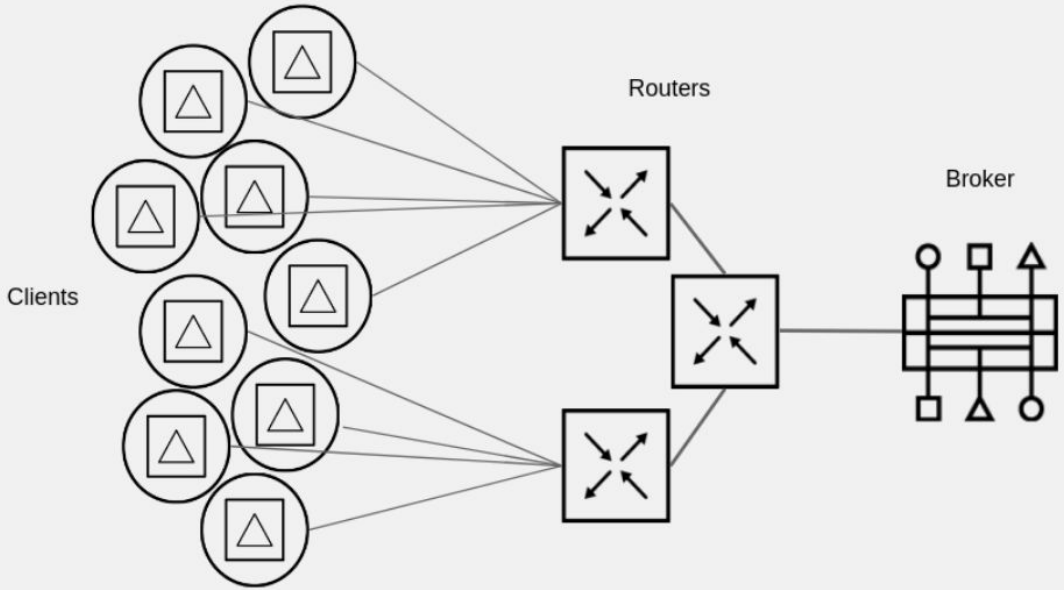
AMQ Interconnect helps to create different topologies to manage a high volume traffic or define an elastic network in front of AMQ brokers.

Different topologies could resolve the following features:

- Large volume, High throughput
- Scale up broker vertically through interconnect routers
- Traffics automatically load balance among shards of brokers
- Freedom to add/remove shards without client noticing

AMQ 7 - Interconnect Topology

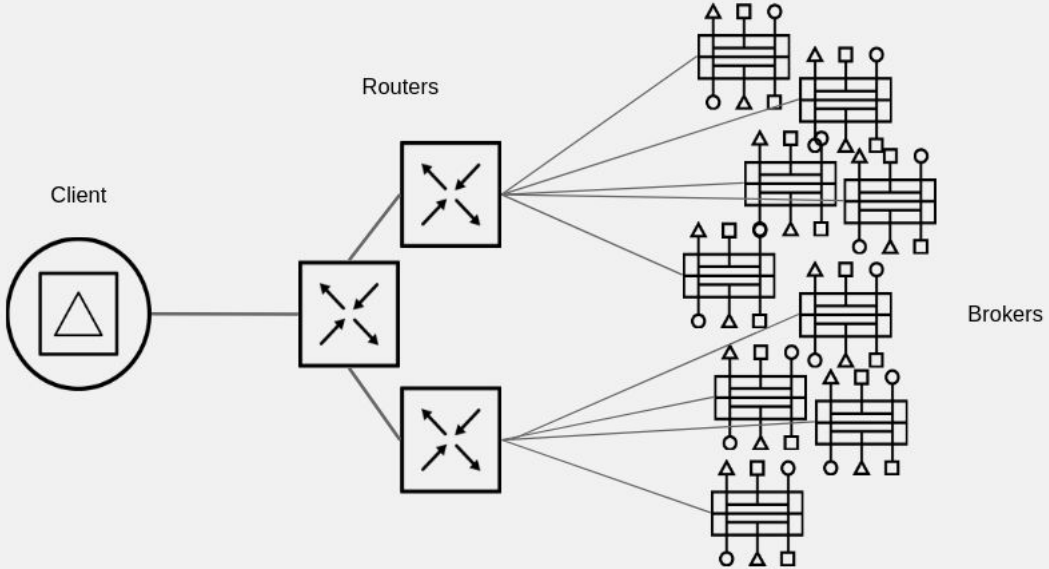
Connection Aggregation



- Clients will manage a lot of connections
- however the routers will manage less connections to the brokers deployed in the back-end.
- Routers will manage huge amount of connections instead of the final broker instances.

AMQ 7 - Interconnect Topology

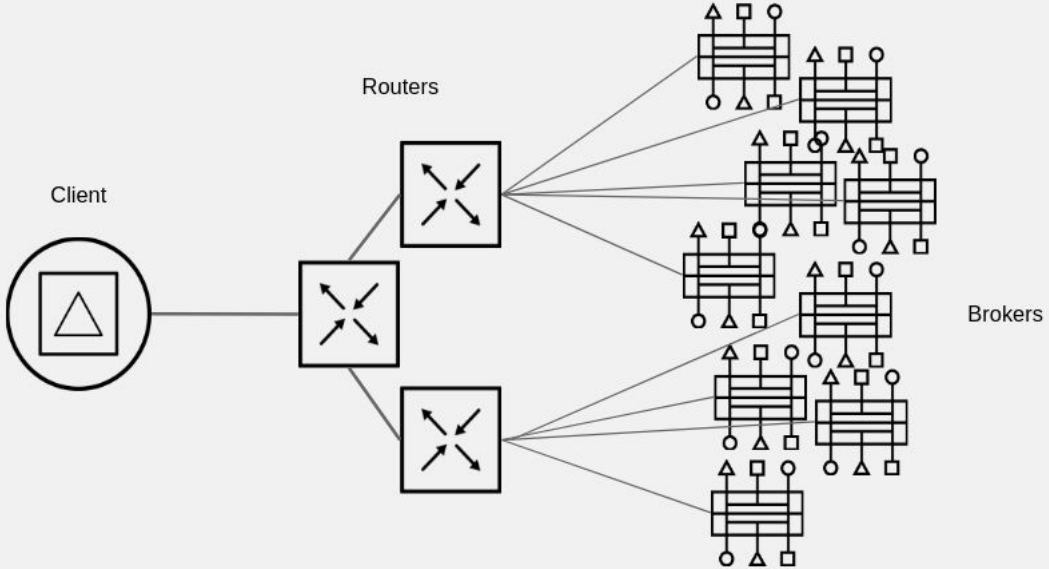
Elastic Network



This topology will help us to modify the AMQ instances topology without any impact to the clients. We could add/remove more brokers and the clients will manage the same connections.

AMQ 7 - Interconnect Topology

Elastic Network



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