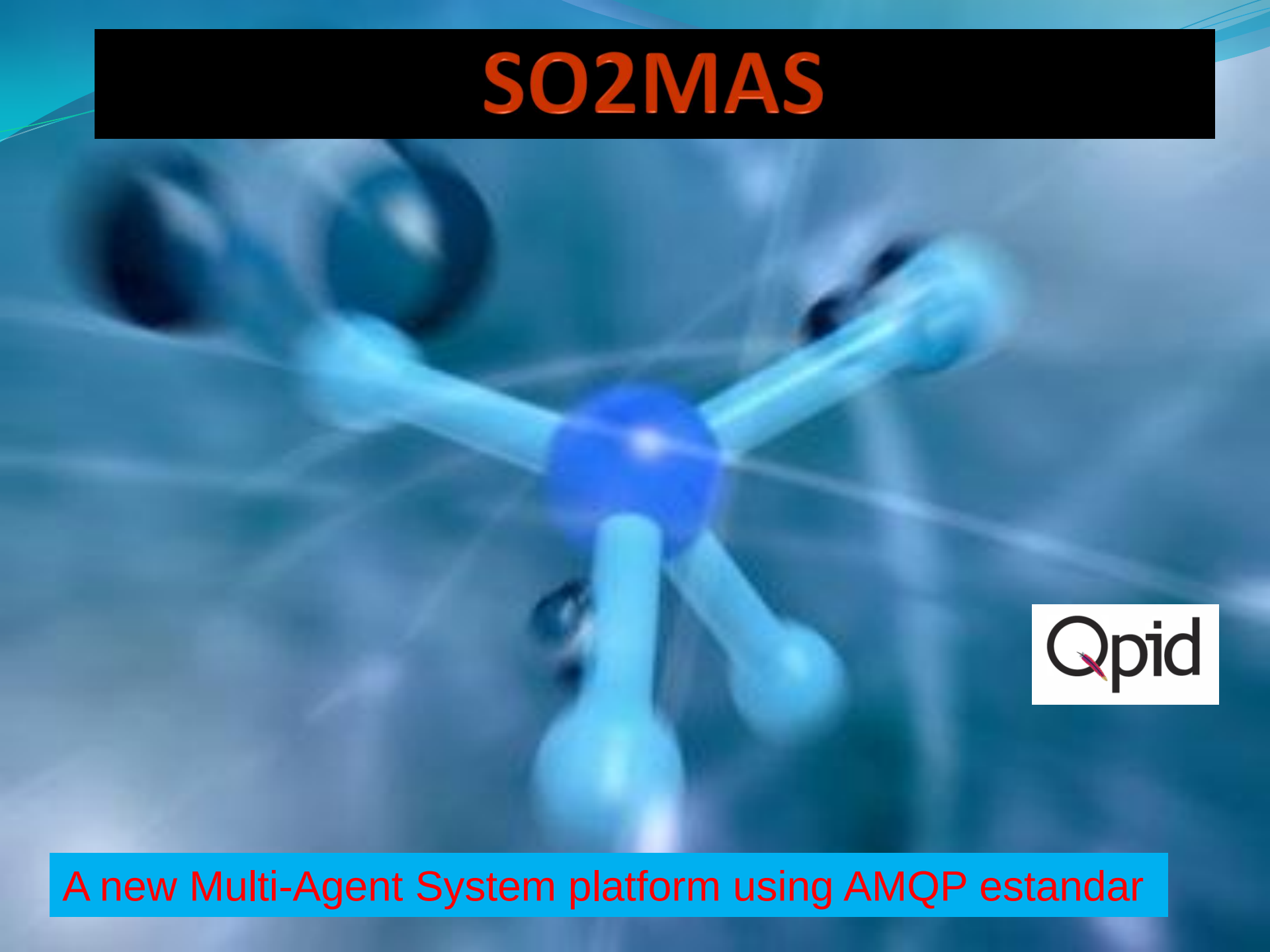
SO2MAS



A new Multi-Agent System platform using AMQP estandar

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1. Introduction of AMQP
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AMQP
(Advanced Message Queuing Protocol)

- Standard Messaging.
- Uses a highly efficient binary protocol, unlike other previous approaches working with XML.
- Enables complete interoperability for messaging middleware
- Offers:
  - Point-to-point
  - Publish/subscribe
  - Many-to-many messaging.

How AMQP works?

AMQP defines three main types of components, connected into processing chains in a server to create the required functionality:

- The "**exchange**" component receives messages from applications and routes these to message queues, based on various criteria, usually message properties or content.
- The "**message queue**" component stores messages until a consumer client application can process them.
- The "**binding**" component defines the relationship between a message queue and an exchange and provides the message routing rules.

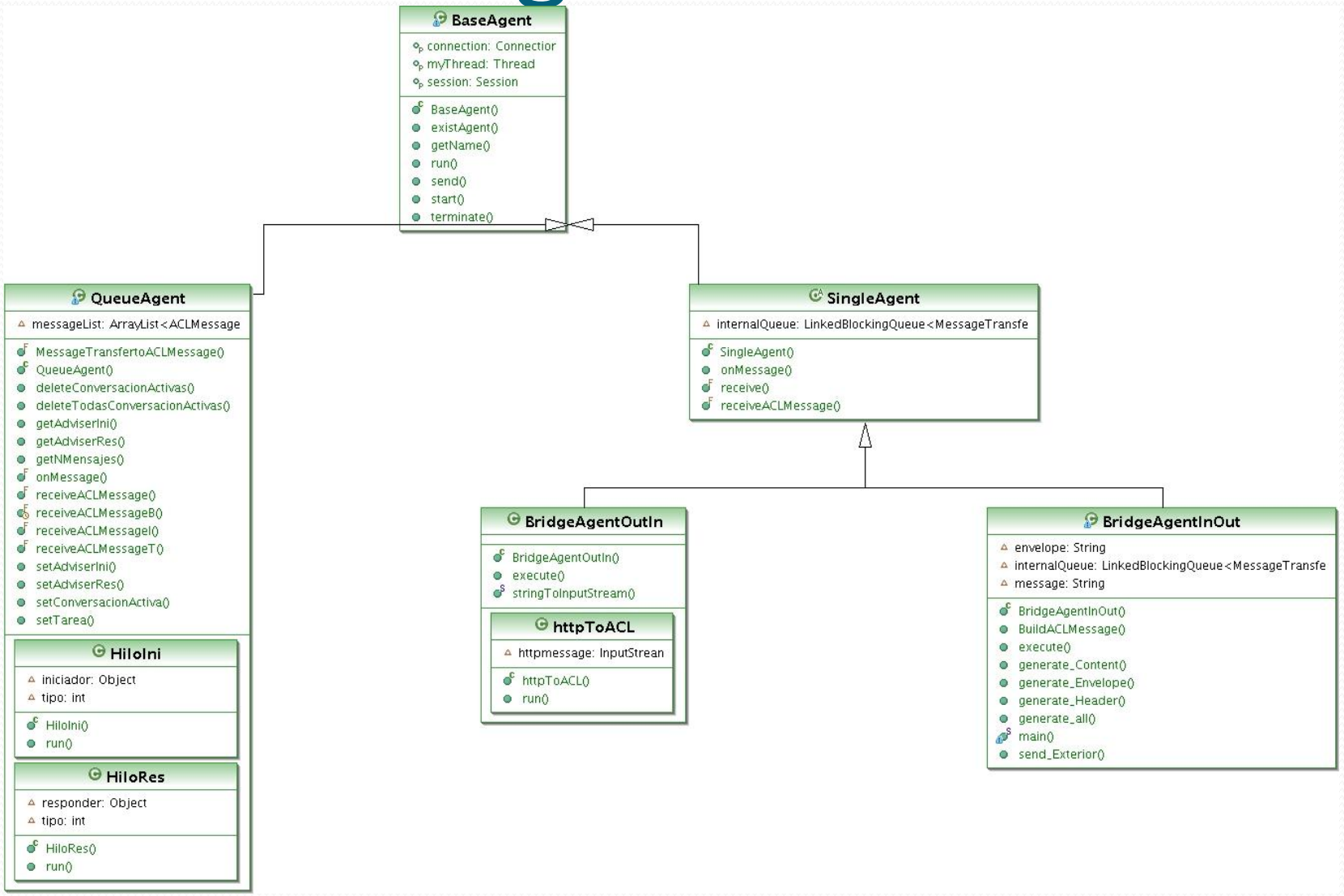
AMQP Features

The AMQP protocol defines a transport layer and a functional layer.

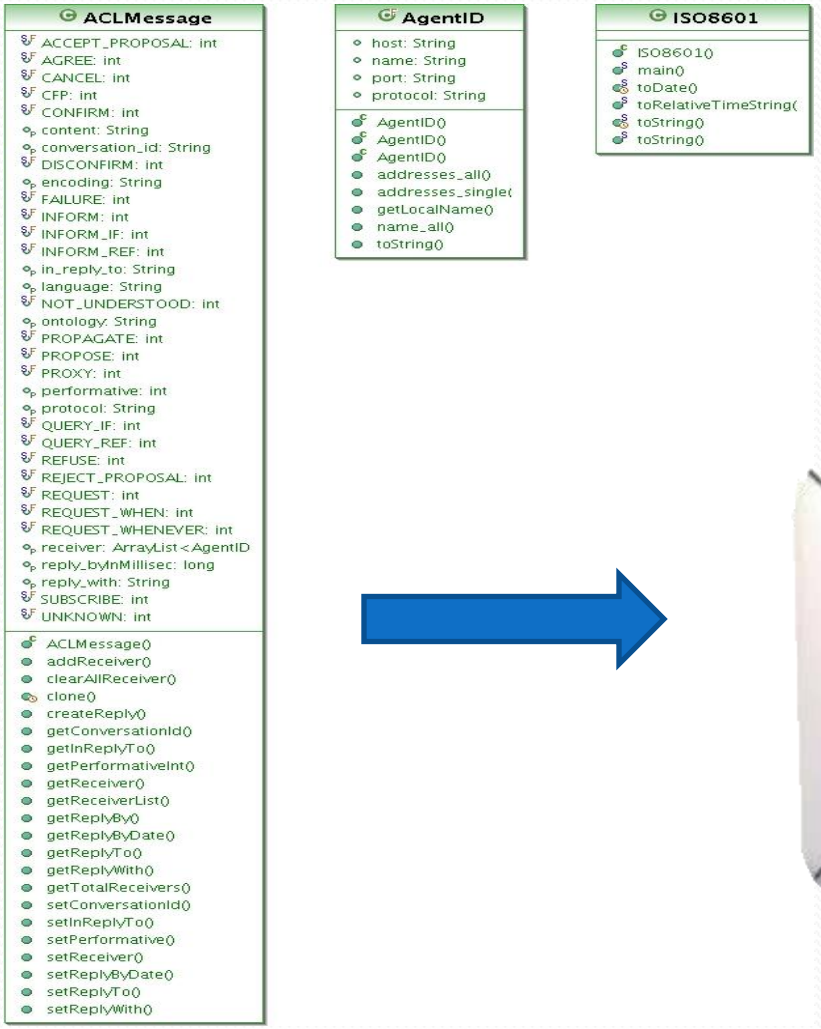
A binary protocol with modern features, it is:

- *Multi-channel*
- *Negotiated*
- *Asynchronous*
- *Quite secure*
- *Portable*
- *Neutral*
- *Quite efficient*

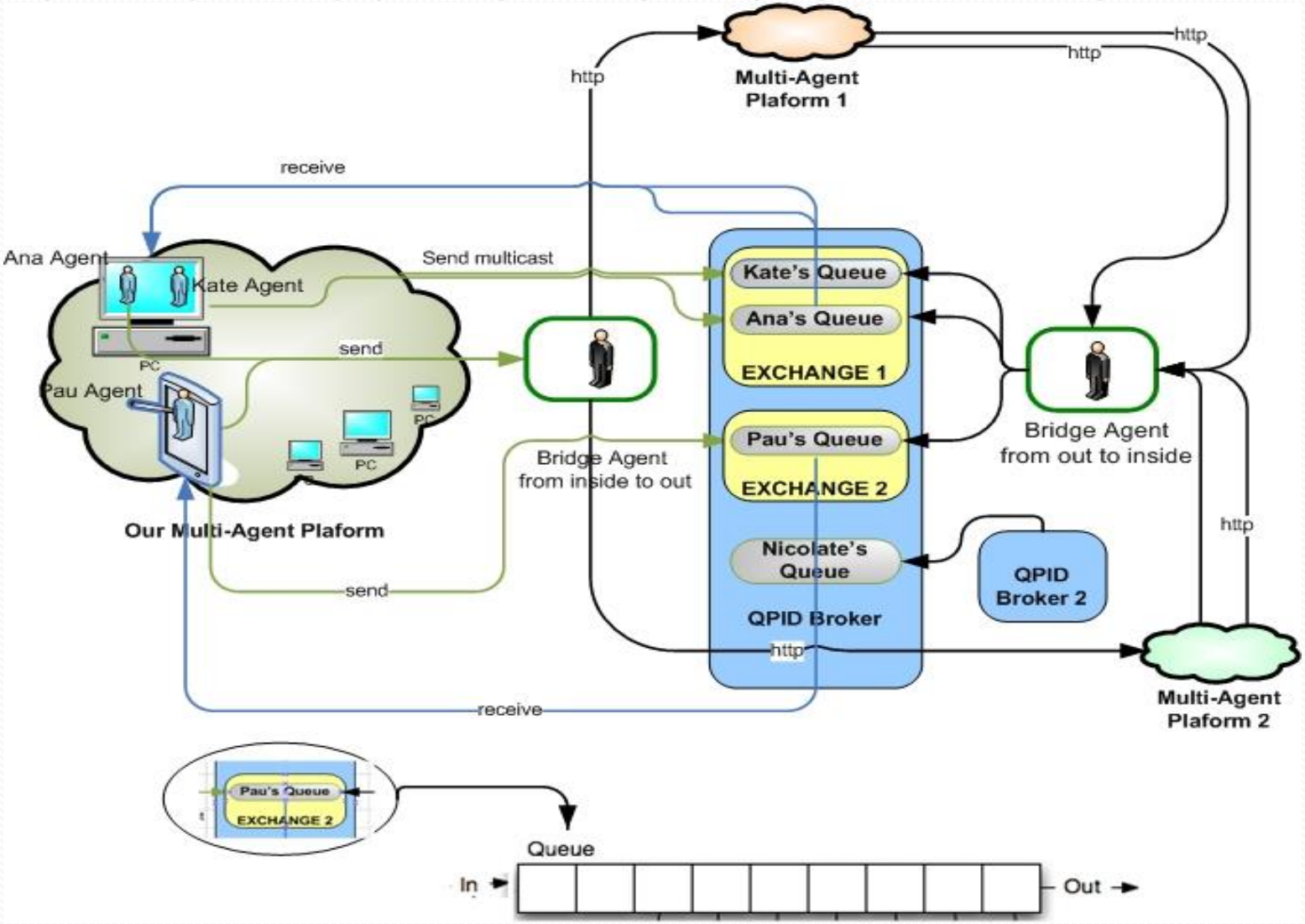
Simple Diagram of Agents Model



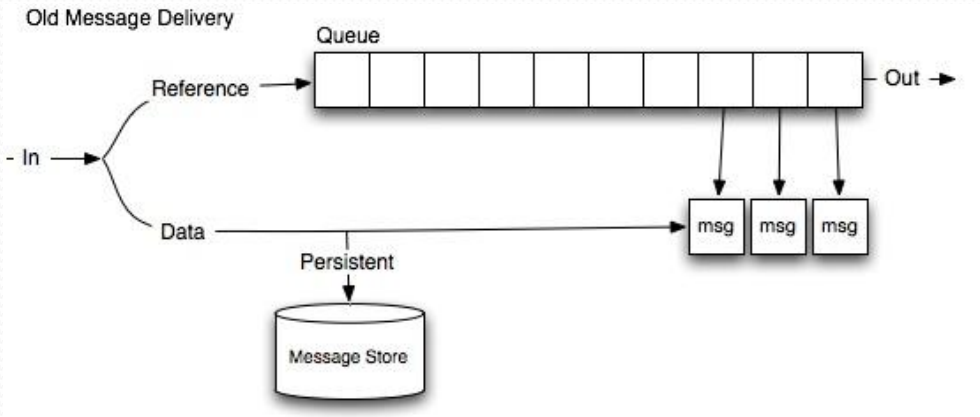
Format of Qpid-Messages

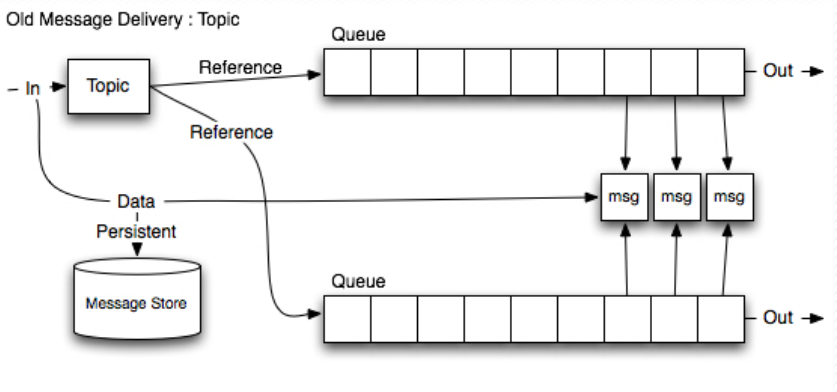


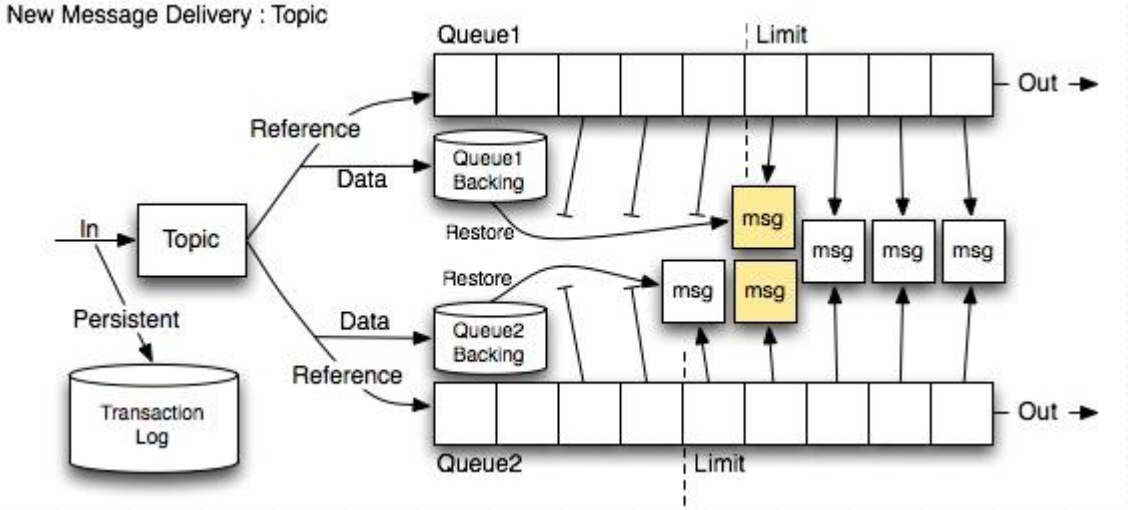
Comunication of SO2MAS



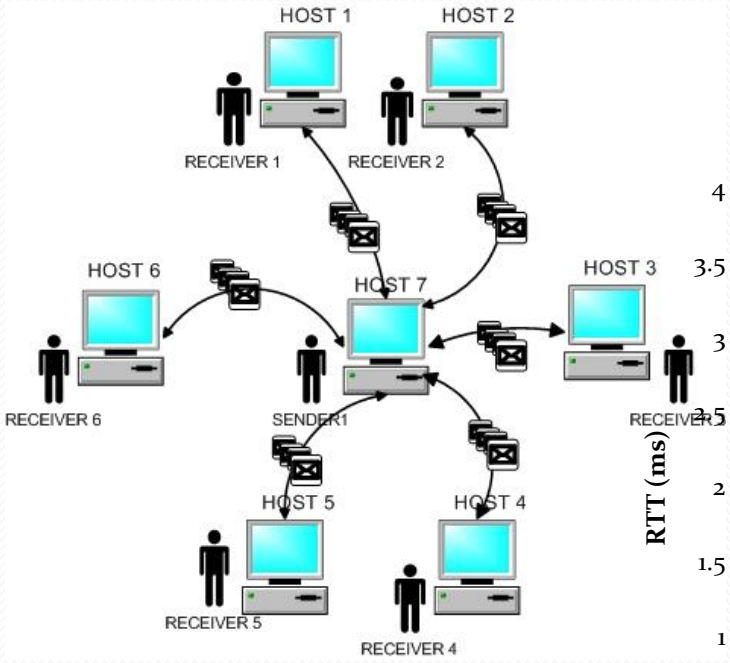
Queues

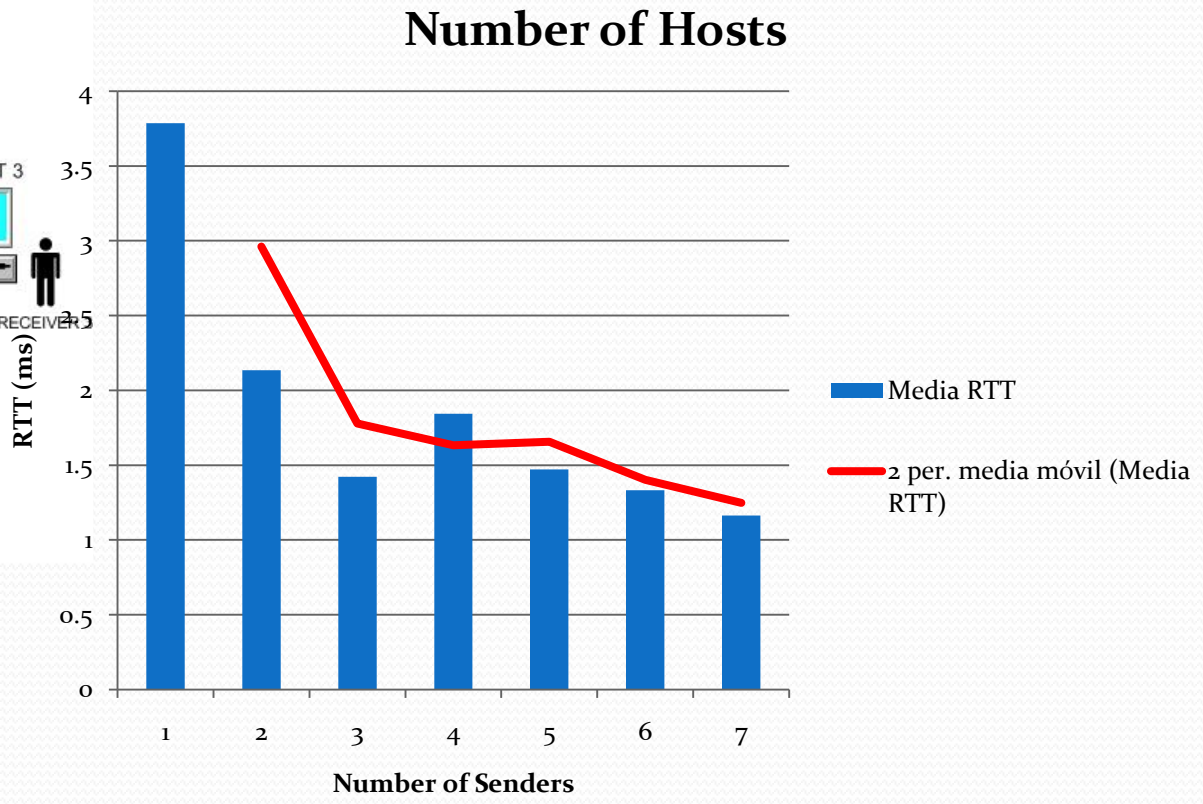

Old Message Delivery
Queue
Reference
In
Out
Data
msg
msg
msg
Persistent
Message Store


Old Message Delivery : Topic
Queue
In
Topic
Reference
Out
Reference
Data
msg
msg
msg
Persistent
Message Store
Queue
Out

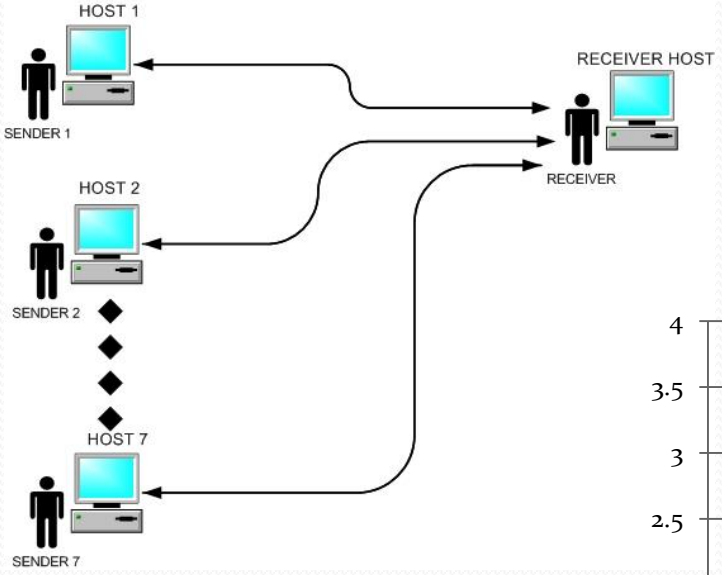

New Message Delivery : Topic
Queue1
Limit
Out
Reference
Data
Queue1
Backing
In
Topic
Restore
msg
msg
msg
msg
Restore
msg
msg
Persistent
Data
Queue2
Backing
Reference
Transaction
Log
Out
Queue2
Limit

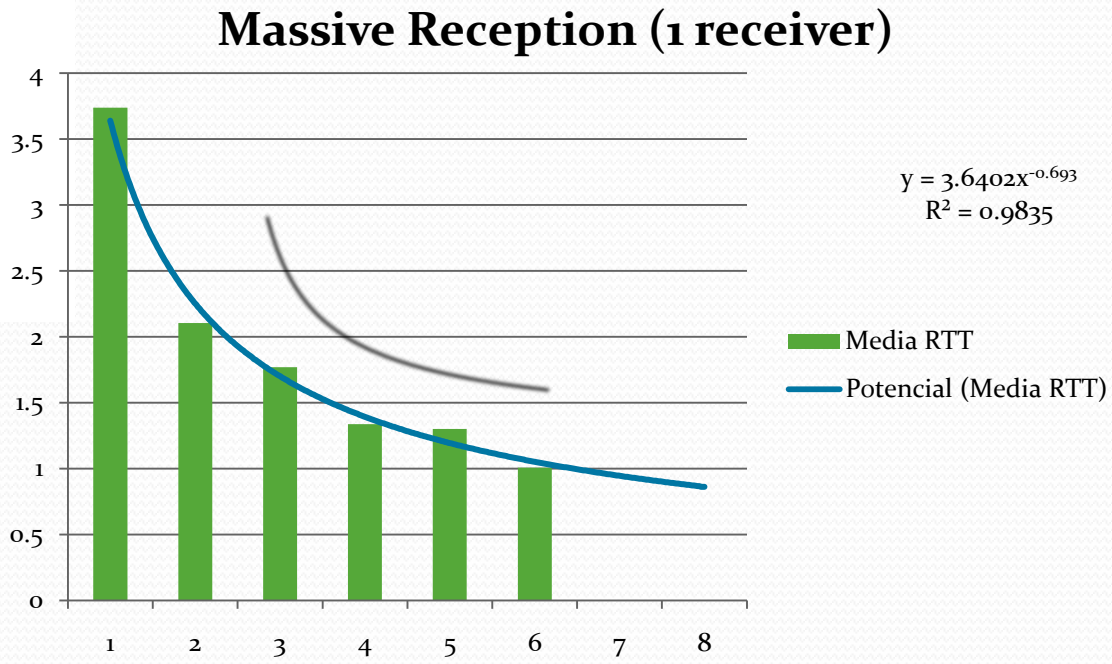
Bencharks:
1.Number of Hosts



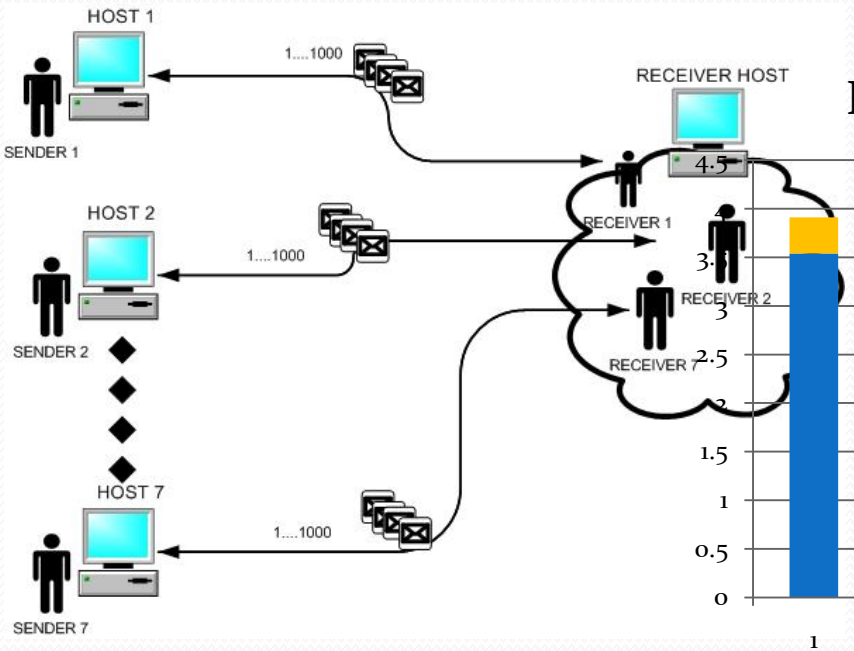


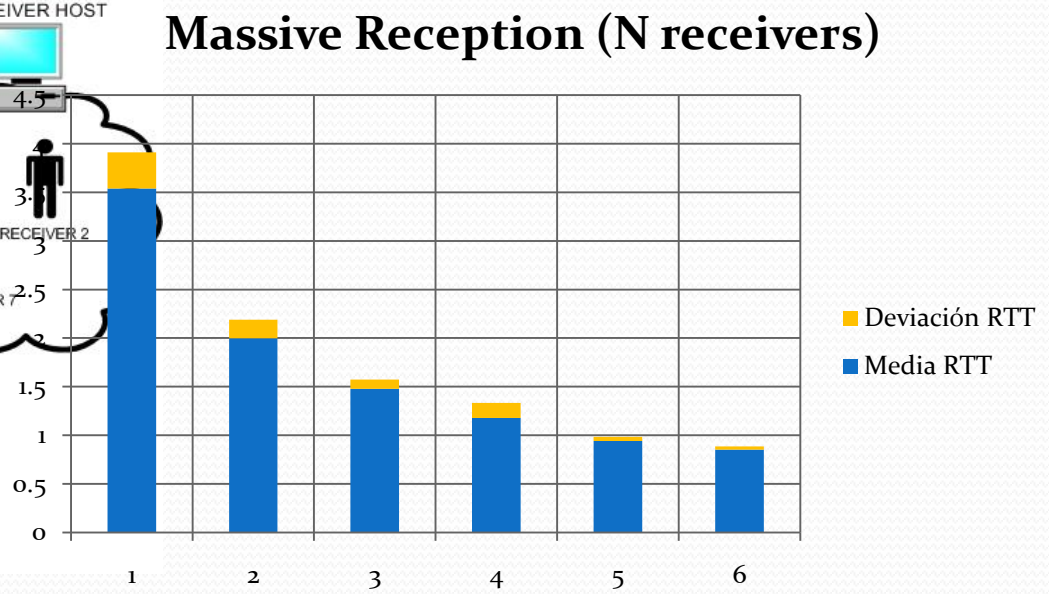
2.Massive Reception (1 receiver)



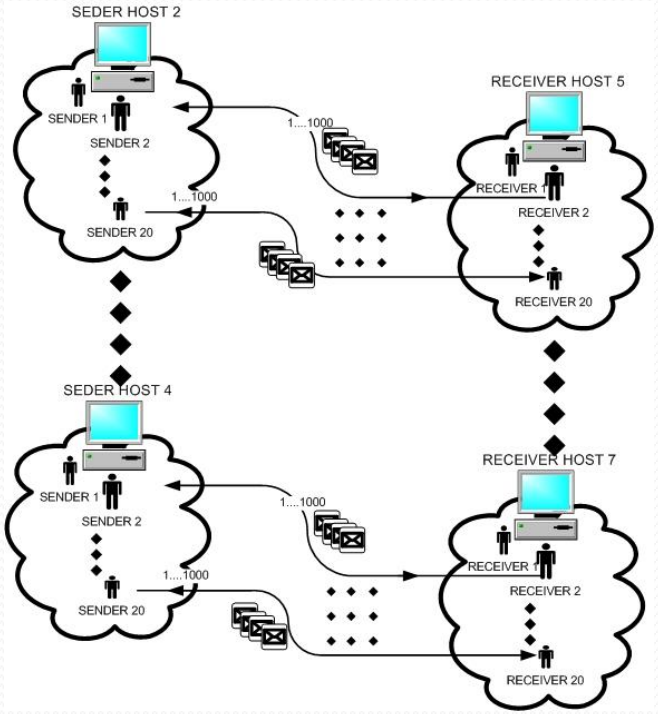


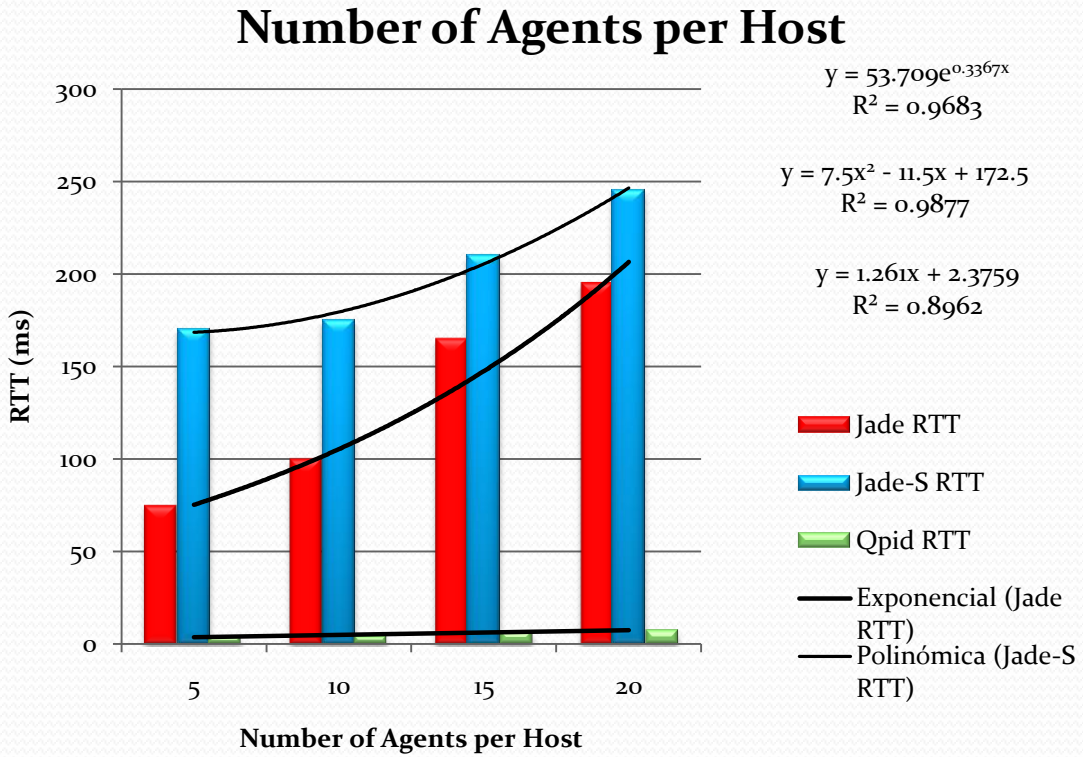
3. Massive Reception (N receivers)





4. Number of Agents per Host





Protocols (Joan….)

Joan 2

Conclusions

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