

Message Queue Fundamentals in .NET

Course Summary

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pluralsight 
hardcore dev and IT training

Course Outline

Introducing
Message
Queues

Message
Queue PoC

MSMQ

ZeroMQ

Cloud Message
Queues
(Azure & AWS)

WebSphere MQ

Messaging Patterns



Fire-and-forget

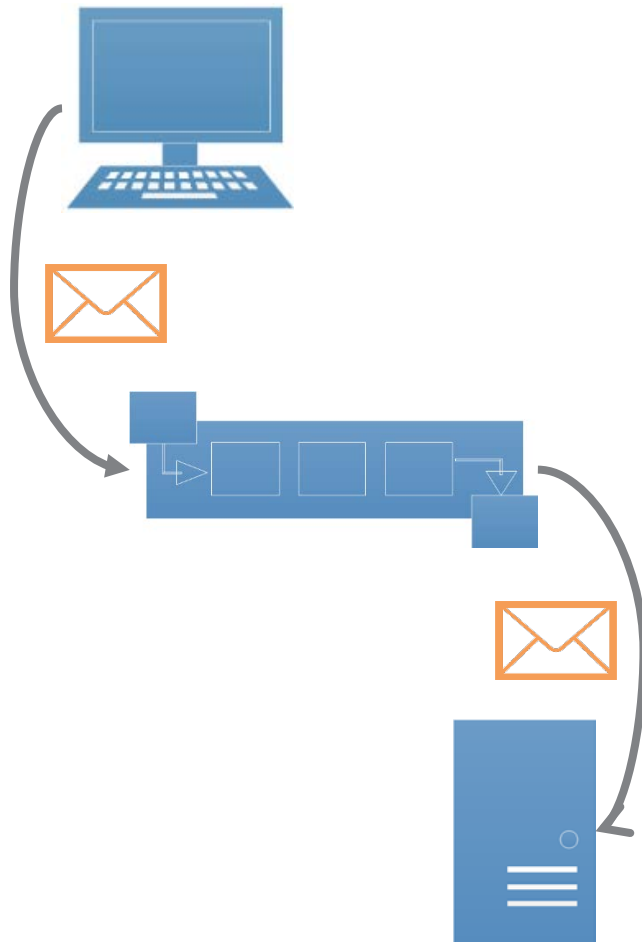


Request-response



Publish-subscribe

Fire-and-Forget



Client sends message

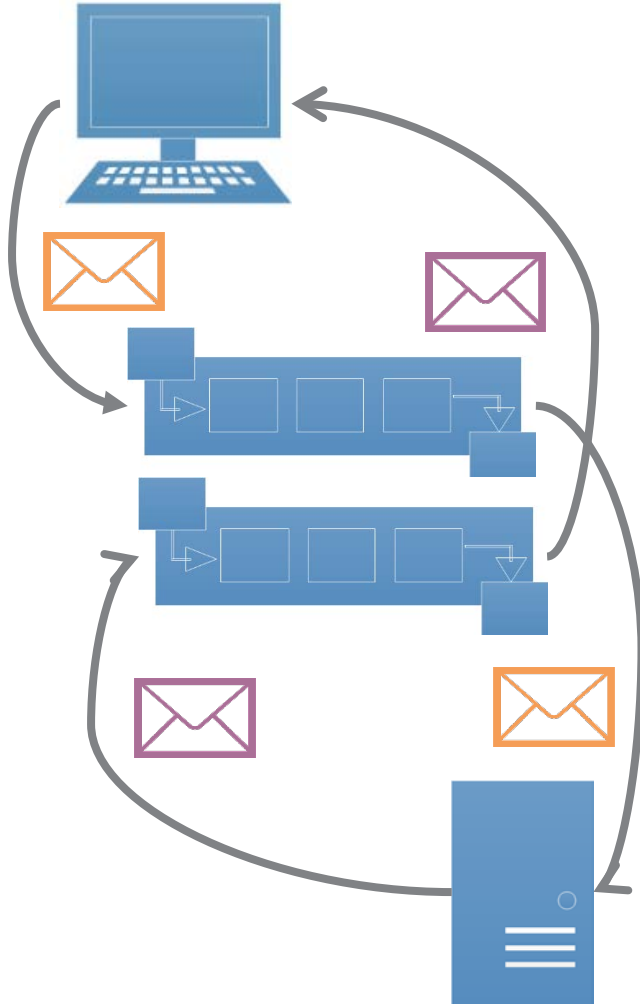
Carries on with other work

Handler retrieves message

Processes work

One-way communication

Request-Response



Client sends message + reply address

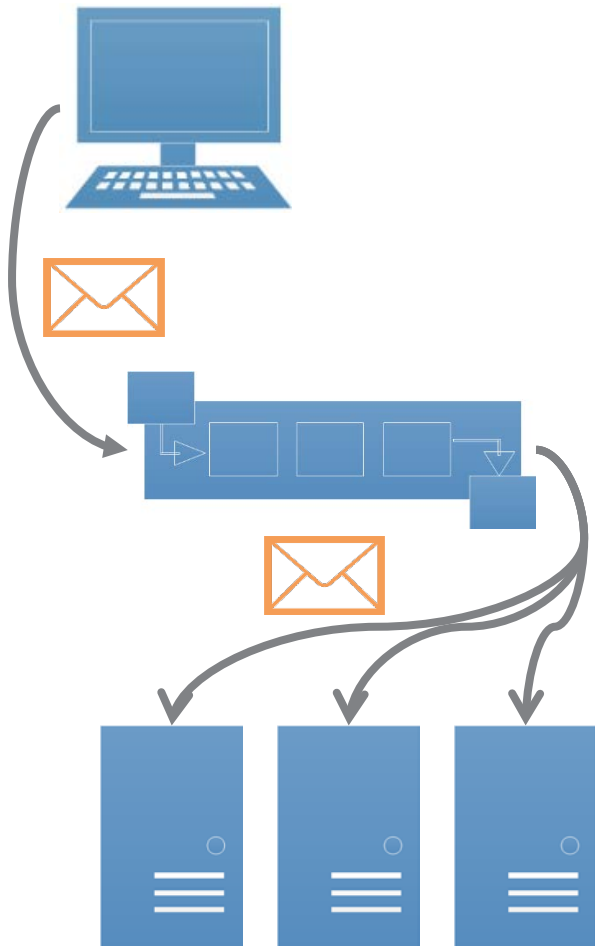
Carries on with other work

Handler retrieves message

Processes work + sends response

Client retrieves response message

Publish-Subscribe



Publisher sends message

Queue forwards message

Subscribers retrieve message

Process work

Messaging Patterns



Fire-and-forget



Request-response



Publish-subscribe

Message Queues

Messaging pattern implementations
Variations with technologies

Message queue technologies
Features and architecture

Queue isolation
Solution is technology-agnostic

Message Queue Comparison

Raw
performance

Scalability
options

Support for
recoverability

Administration
tools

Performance



1. ZeroMQ

2. MSMQ

3. WebSphere MQ

4. AWS Simple Queue Service

5. Azure Service Bus

1,000 message sends



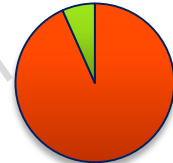
<0.05s



<0.5s



<1.5s



56s



59s

Scalability



1. Microsoft Azure

Concurrency
Scale & auto-scale

1. Amazon Web Services

3. WebSphere MQ

Queue Manager
clusters

4. MSMQ

Scale up infrastructure

4. ZeroMQ

Recoverability



1. Microsoft Azure

1. Amazon Web Services

Always transactional

Multiple storage nodes

3. WebSphere MQ

3. MSMQ

Disk infrastructure

X. ZeroMQ

In-memory messaging

Management



1. WebSphere MQ

MQ Explorer & **MQS** scripting

2. Amazon Web Services

Rich Web UI & command-line tools

3. MSMQ

Windows UI

X. ZeroMQ

None

Message Queue Comparison



	Performance	Scalability	Recoverability	Management	Total
<i>AWS</i>	2	5	5	4	16
<i>WebSphere MQ</i>	3	3	3	5	14
<i>Azure</i>	1	5	5	2	13
<i>MSMQ</i>	4	2	3	3	12
<i>ZeroMQ</i>	5	2	0	0	7

Practical Messaging



Windows Service message handlers

Consistent configuration model

Parallel message processing

End-to-end feature tests

What Next?

We haven't covered

- Correlating messages
- In-order messaging
- Delivery guarantees
- Recovery scenarios

RabbitMQ & AMQP

- Michael Stephenson
 - Rabbit MQ for .NET Developers
 - Part 1 and 2

Cloud Messaging

- @EltonStoneman
 - Implementing the Reactive Manifesto with Azure and AWS