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Reliable Communication between Applications with Delphi and ActiveMQ

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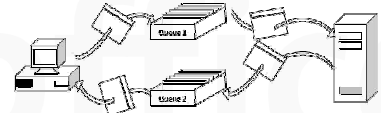
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Message Queueing

- Decoupling:
 - Sender is decoupled from receiver (and vice versa)
- Asynchronous:
 - Sender and receiver do not need to be active at the same time (But they can)
- Reliable:
 - Messages placed onto the queue are stored until the recipient retrieves them



- See: http://en.wikipedia.org/wiki/Message_queue

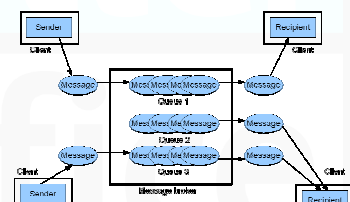
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MQ is facilitates MOM

- Message Oriented Middleware
 - Is all about sending and receiving messages
 - Uses queues for sending/receiving
- MOM can be based on
 - Message Queueing
 - Broadcasting
 - Multicasting



- See: http://en.wikipedia.org/wiki/Message-oriented_middleware


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MQ much more flexible than Client/Server

- Multi-sender / receiver
 - MQ is not limited to classic Client/Server (where multiple clients can access one server)
 - Each queue can have
 - Multiple senders
 - Multiple receivers
- Receiver independent of sender
 - Receiver can start much later than the client



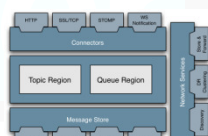
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ActiveMQ

The Apache
Software Foundation
<http://www.apache.org/>

- Is a JMS implementation by Apache
- Supports many protocols, including Stomp (Streaming Text Orientated Messaging Protocol)
- Is Open Source
- Is written in Java, so multi platform
- Is Pretty fast (like: 100's of messages per second)
- Requires JRE 1.5 or higher
 - Tested with JRE (Java 5) 1.5 and JRE 1.6 (Java 6)
- See:
 - <http://www.mostly-useless.com/blog/2007/12/27/playing-with-activemq/>
 - http://en.wikipedia.org/wiki/Java_Message_Service
 - <http://stomp.codehaus.org/>



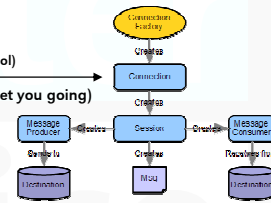
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Habari ActiveMQ client

- Supports
 - Delphi 6 to 2010 and Free Pascal
 - Apache ActiveMQ 4.0 to 5.2
 - Stomp (Streaming Text Orientated Messaging Protocol)
- Follows JMS API (a lot of JMS documentation is available to get you going)
- Can do serialization
 - XML
 - JSON
- Requires a Delphi TCP/IP layer:
 - Indy
 - Synapse
 - ICS6 (unsupported)
 - Delphi Socket component (unsupported)
- See: <http://www.mikejustin.com/habari.html>



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What we used it for

- Transform

- From

- Classic client/server Delphi prototype

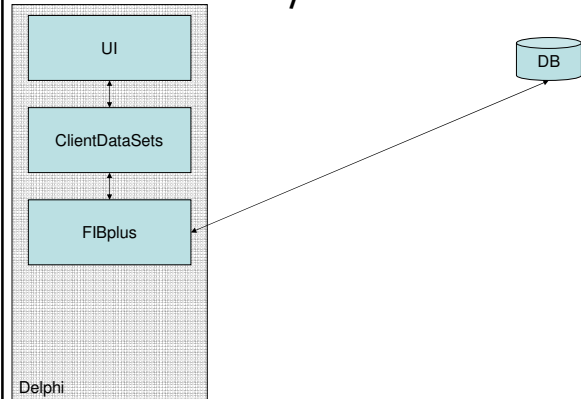
- To flexible structure

- Client = thick Delphi client
 - Server = Delphi middleware to Firebird
 - Server = Java middleware to Firebird (PC)
 - Server = Java middleware on AS/400 (iSeries)

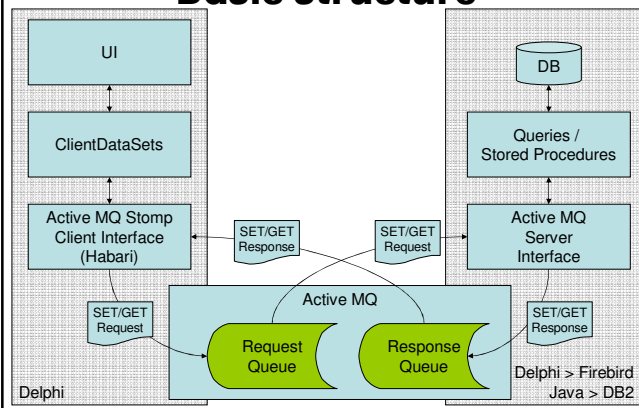
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Classic client/server structure



Basic structure



Delphi

Delphi > Firebird
Java > DB2

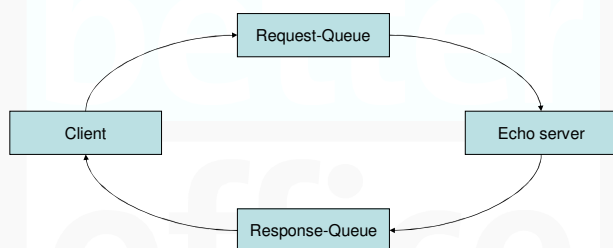
How to get going

- Get acquainted to the JMS API
 - Write some wrappers for this
- Define your message format
 - We used XML with our own XSDs
XML looks a lot like ClientDataSet XML
- Write your own debugging tools
 - Not much tooling around ActiveMQ
 - Functionality in "Apache ActiveMQ Message Admin Tool" came too late to help us

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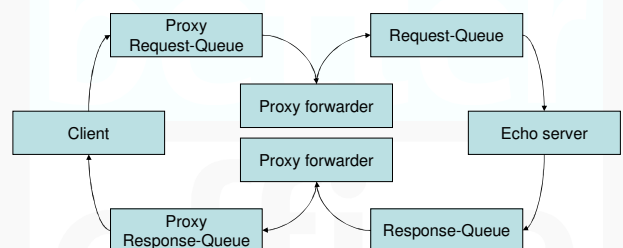
Test scenario



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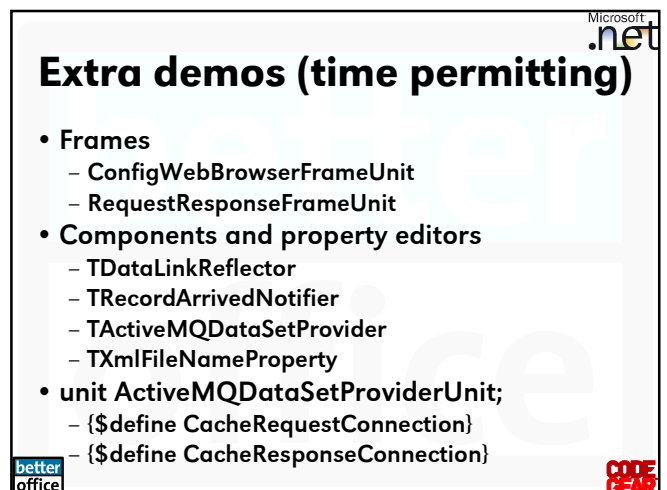
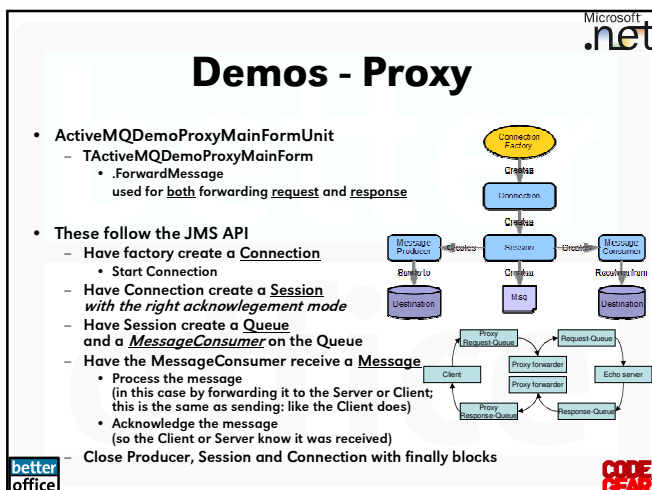
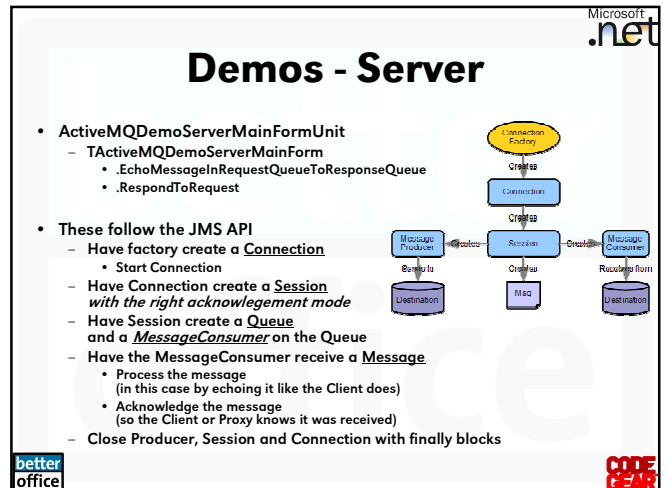
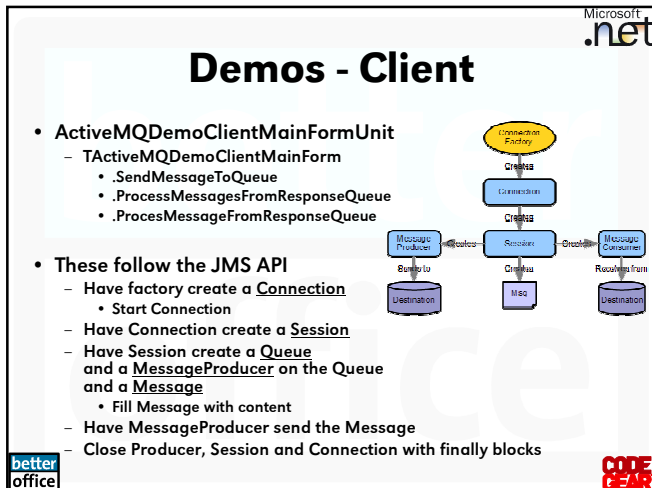
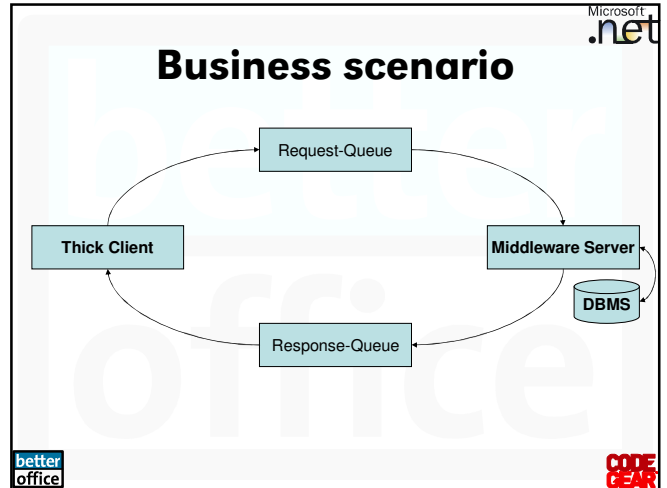
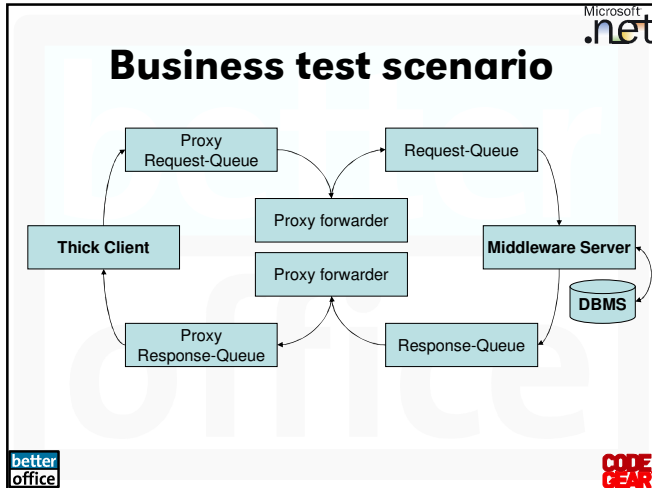
Test scenario



- Easiest if you make queues configurable
→ Config.xml

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Apache ActiveMQ Message Admin Tool

- Got updated to 2.5.0 and now does much of what we needed early this year:
<http://sourceforge.net/projects/activemqbrowser/>
- Requires JRE 1.6 (Java 6)
- Don't forget to set this value to "true" in activemq.xml:

```
<managementContext>
  <managementContext createConnector="true"/>
</managementContext>
```
- Connect with these settings:
 - JMX URL service:jmx:rmi:///jndi/rmi://localhost:1099/jmxrmi
 - JMX role system
 - JMX password manager
 - Connection URL tcp://localhost:61616

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Q & A

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If you have questions after the session, please mail me

Downloads will be on my blog: <http://wiert.wordpress.com>

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