Multitenant ActiveMQ
Top Level Project since Jan 17th, 2007.

Apache ActiveMQ is fast, supports many Cross Language Clients and Protocols, comes with easy to use Enterprise Integration Patterns and many advanced features while fully supporting JMS 1.1 and J2EE 1.4. Apache ActiveMQ is released under the Apache 2.0 License.
Features

✓ Fast
✓ Mature
✓ Robust
✓ Secure
✓ Scalable
✓ Extensible
Product or Framework?
A JMS Application
... and other JMS Applications
The problem
What we’d like
What we got
What we really need
Options

- Amazon Web Services
- Rackspace
- IronMQ
- Apache ActiveMQ
Configuring Brokers

activemq xbean:file:../conf/myConfig.xml

<beans ...
   <bean class="org.springframework.beans.factory.config.PropertyPlaceholderConfigurer"> ...

   <broker brokerName="localhost" dataDirectory="${activemq.data}"> ...
      <destinationPolicy>
      <managementContext>
      <persistenceAdapter>
      <systemUsage>
      <transportConnectors>
      <networkConnectors>
      <shutdownHooks>
   </broker>
</beans>

http://activemq.apache.org/xml-configuration.html
http://activemq.apache.org/user-submitted-configurations.html
Configuring brokers

```java
public interface BrokerFactoryHandler {
    // interface used to create a broker from a URI scheme
    BrokerService createBroker(URI brokerURI) throws IOException;
}
```

```java
public class AcnaFactoryHandler implements BrokerFactoryHandler {
    // ...
}
```

Create: src/main/resources/META-INF/services/org/apache/activemq/broker/acna
class=org.example.activemq.acna.AcnaBrokerFactory
Discovering brokers

```xml
<broker brokerName="one">
  <transportConnectors>
    <transportConnector uri="tcp://localhost:0" discoveryUri="multicast://default"/>
  </transportConnectors>
</broker>

<broker brokerName="two">
  <networkConnectors>
    <ldapNetworkConnector uri="ldap://ldap.example.com:389"
      base="dc=brokers,dc=example,dc=com"
      anonymousAuthentication="true"
      searchFilter="(cn=*)"
      searchScope="SUBTREE_SCOPE" />
  </networkConnectors>
</broker>
```

http://activemq.apache.org/discovery.html
public interface DiscoveryAgent extends Service {

    // Sets the discovery listener
    void setDiscoveryListener(DiscoveryListener listener);

    // register a service
    void registerService(String name) throws IOException;

    // A process actively using a service may see it go down before the DiscoveryAgent notices the
    // service's failure. That process can use this method to notify the DiscoveryAgent of the failure
    // so that other listeners of this DiscoveryAgent can also be made aware of the failure.
    void serviceFailed(DiscoveryEvent event) throws IOException;
}
Transports (protocols)

- AMQP
- MQTT
- OpenWire
- REST
- RSS and Atom
- Stomp
- WSIF
- WS Notification
- XMPP

http://activemq.apache.org/configuring-transports.html
<p>Persistence</p>

```xml
<persistenceAdapter>
mKahaDB directory="${activemq.base}/data/kahadb">
  <filteredPersistenceAdapters>
    <filteredKahaDB queue="namespace.">
      <persistenceAdapter>
        <kahaDB journalMaxFileLength="32mb"/>
      </persistenceAdapter>
    </filteredKahaDB>
    <filteredKahaDB>
      <persistenceAdapter>
        <kahaDB enableJournalDiskSyncs="false"/>
      </persistenceAdapter>
    </filteredKahaDB>
  </filteredPersistenceAdapters>
</mKahaDB>
</persistenceAdapter>
```

http://activemq.apache.org/kahadb.html
Management and Monitoring
Diagnosis
Intermezzo

Broker Topologies

http://activemq.apache.org/masterslave.html
Plugins

(*) Need to provide the LdapConfiguration in the JAAS login.config
(**) The ootb ldap authn/authz is not sufficient to infer the ‘zone’ (destination namespace)

http://activemq.apache.org/runtime-configuration.html
http://activemq.apache.org/timestampplugin.html
http://activemq.apache.org/security.html
Infrastructure (platform)
Securing Brokers

✓ nio+ssl
✓ https
✓ ldaps (auth)

✓ CA
✓ Logging
✓ Non Repudiation
✓ IDC
✓ Malware Analysis
Networking

The network is reliable
Latency isn't a problem
Bandwidth isn't a problem
The network is secure
Topology won't change
The administrator will know what to do

Transport cost isn't a problem
The network is homogeneous
The system is atomic/monolithic
The system is finished
Business logic can and should be centralized
## SilkMQ

### Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Traffic</th>
<th>Queues</th>
<th>Topics</th>
<th>Clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>project 1</td>
<td>small</td>
<td>12</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>project 2</td>
<td>medium</td>
<td>30</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>project 3</td>
<td>huge</td>
<td>394</td>
<td>65</td>
<td>14</td>
</tr>
</tbody>
</table>

- **project 1** - small traffic
  - 291 total messages
- **project 2** - medium traffic
  - 1002 total messages
- **project 3** - huge traffic
  - 232,543 total messages

+ New Project
Multitenant Deployment
Apache Brooklyn

CAMP
Cloud Applications Management
for Platforms

TOSCA
Topology and Orchestration
Specification for Cloud Applications
services:
  - name: 06b399a3-a691-4850-9af4-43c2e8ecc07b
type: brooklyn.entity.messaging.activemq.ActiveMQBroker
brooklyn.config:
  version: 5.11.1
  activemq.brokerName: 06b399a3-a691-4850-9af4-43c2e8ecc07b
  activemq.customConfigurationUrl: >
http://ec2-52-1-249-64.compute-1.amazonaws.com/nob/06b399a3-a691-4850-9af4-43c2e8ecc07b.xbean
Deploying Brokers
Thanks!

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Alexandru Zbarcea  azbarcea

http://www.cloudsoftcorp.com/
http://busymachines.com/
http://spectrsys.com